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Bulletin

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RESULTS OF RECENT STUDIES ON DUCTLESS GLANDS*

W. B. CANNON, M.D.

BOSTON

During the past four or five years many of the researches of the Harvard Physiological Laboratory have been concerned with the bodily changes which accompany strong emotions, such as fear and rage. These are fundamental experiences in man and the lower animals, so much so that their expression constitutes a sort of common language. The studies which have been carried on have revealed interesting relations between these emotions and certain glands of internal secretion, and have suggested also a way in which emotional excitement may occasion pathologic states.

When a cat becomes infuriated, the pupils are dilated and the hair is erect from the neck to the end of the tail. But besides these surface manifestations there are internal changes; for example, the heart beats rapidly and the activities of the stomach and intestines are stopped. Both the internal and the external changes are due to the passage of nerve impulses to viscera along the neurons of the sympathetic division of the autonomic system. The relation of the fibers connecting the central nervous system with these neurons is such as to provide for diffuse action on all the viscera that are innervated by this division.

The suprarenal glands are supplied with nerves from the sympathetic division; and also the secretion of the suprarenal medulla affects all structures innervated by the sympathetic division precisely as if they were being stimulated by its impulses. We have found that the suprarenal glands secrete epinephrin in times of great excitement, that there is an increased liberation of sugar from the liver so that glycosuria may result, that there is an abolition or prompt lessening of muscular fatigue, and that there is a very much more rapid clotting of blood. It is known also that epinephrin causes a redistribution of blood in the body so that it is sent away from the alimentary canal, whose activities are inhibited, to the heart, the lungs, the central nervous system and active skeletal muscles. It is known, also, that epinephrin causes dilation of the bronchioles, and it is known that it increases the number of red blood corpuscles per cubic millimeter — an increase which Lamson has shown occurs also to a marked degree in case of emotional excitement.

These changes, as true of man as of the lower animals in times of great emotional stress, are significant when the conditions which would give rise to the emotions are considered. Fear is associated with the instinct to flee; rage with the instinct to fight. These are the emotions and instincts underlying the struggle for existence. They are also the emotions and instincts into which all other instincts may be readily turned when they are thwarted. The internal changes are all directed toward increasing the efficacy of the organism for physical struggle. The increased blood sugar provides a source of muscular energy. The altered distribution of blood and the increased number of red blood corpuscles arrange for carrying an abundance of oxygen to the active structures. The dilated bronchioles allow ready ventilation of the lungs when oxygen is greatly needed and carbon dioxid is being produced in large amounts. The provision for lessening muscular fatigue is directly useful in muscles likely to be employed in continued action. The rapid coagulation of blood tends to preserve that precious fluid in case of injury to blood vessels. The organism in which these changes most promptly occur has the greatest reinforcement of its abilities and is most likely to be favored in physical struggle. These arrangements for reinforcement account for the great power and endurance which are exhibited in times of intense excitement.

Other glands than the suprarenal are not so readily studied because of the difficulty of recognizing their secretions. It has long been known, however, that physiologic activity is accompanied by the presence of an electrical difference which may be observed by connecting an active part with an inactive part of the body through a sensitive galvanometer. Justification of this method of studying glands can be obtained by applying it to the submaxillary gland. It has been found that the electrical change begins before the external secretion appears, disappears as secretion stops, and is not related either to flow of fluid in the ducts or a change of blood flow in the capillaries. Since the only feature that cannot be abolished without abolishing the electrical change is secretion, the electrical effect is a true indicator of a secretory process. When this method, therefore is applied to the thyroid gland, the positive testimony of the galvanometer is evidence of thyroid secretion.

The electrical method shows that the thyroid gland is subject to impulses from a part of the sympathetic division of the autonomic system, that is, the cervical sympathetic. The secretion comes promptly — after a latent period of from five to seven seconds. The vagus nerve is without control, and pilocarpin, as a stimulator of vagus endings, is likewise without control. The influence of the sympathetic is not due to anemia, for

* From the Laboratory of Physiology in the Medical School of Harvard University.

* Read before the Section on Pathology and Physiology at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

shutting off the blood supply has no such effect as is produced by sympathetic stimulation.

Control by the sympathetic implies that epinephrin may be effective in stimulating the thyroid. This, in fact, is the case, for a marked electrical change is produced when epinephrin (0.1 c.c. of 1:100,000) is injected intravenously into a cat. Furthermore, the action current of the thyroid appears if the nerves to the suprarenal gland are stimulated, an effect which does not occur if the suprarenal glands have been previously removed and which is delayed if the return of blood from the abdominal cavity is delayed, until the blood is again allowed to flow.

Thus a hormone relation between the suprarenal and the thyroid is clearly demonstrated. This electrical evidence, which was obtained in cooperation with Mr. McKeen Cattell, has been confirmed by the observations of Dr. Robert L. Levy. He has found that both stimulation of the cervical sympathetic trunk and injection of stimulating doses of epinephrin greatly augment the effects of small doses of epinephrin in raising blood pressure. This increase of efficacy of epinephrin is not produced if the thyroid glands have previously been removed.

The proof that the thyroid responds rapidly to sympathetic stimulation and that it is effective in combination with suprarenal secretion shows that there is another bodily change to be added to those already mentioned as occurring in times of great emotional excitement.

In the course of this work two questions have arisen: First, why are organs which are disturbed in times of emotional stress not disturbed at other times? It seemed probable that they were protected from interference by a high neuron threshold interposed between the central nervous system and the visceral cells. Consequently only when great excitation is present in the central nervous system is this threshold crossed and the changes in the viscera brought to pass. The second question is, Why, in certain pathologic cases, is there apparently frequent or continuous disturbance of the same viscera? It seemed possible that this might be due to a wearing down of the high threshold here or there from frequent or great emotional experiences. Thus the situation would be like a break in a dike, and only a slight disturbance in the central nervous system might then be needed to result in a pouring through of impulses at the low point and consequently a fairly frequent or continuous disturbance in the viscus innervated by this region. Thus dyspepsia, tachycardia and possibly persistent glycosuria, reported as having an emotional origin, might be accounted for.

To test the effect of continuous stimulation, the phrenic nerve was fused with a peripheral portion of the cut cervical sympathetic. This operation, done with the aid of Dr. C. A. L. Binger, resulted in some animals in tachycardia, increased excitability, loose movements of the bowels, exophthalmos on the operated side (in one case) and, as Dr. Reginald Fitz showed, in great increase of metabolism (in one case an increase of 130 per cent.). These phenomena have disappeared on removal of the thyroid gland on the operated side. The suprarenal glands in two animals that have died of the disease have been greatly enlarged.

The changes thus produced resemble in many respects the symptoms of exophthalmic goiter and support the view that this disease may be primarily due to overactivity of that part of the nervous system disturbed in emotional excitement — possibly, as suggested above, a local stimulation in the cervical region. Two vicious circles may be operative: one through the nervous system due to increased excitability from increased thyroid secretion and resulting thus in increased nervous stimulation of the gland; the other through the blood stream, due to increased suprarenal activity from overaction of the thyroid and stimulating the thyroid in turn in the manner indicated above.

The evidence previously presented shows that besides any routine function, the suprarenal gland has an emergency function brought out in times of great excitement. It is not unreasonable to suppose that the thyroid gland likewise has an emergency function evoked in critical times, which would serve to increase the speed of metabolism when the rapidity of bodily processes might be of the utmost importance, and besides that, augmenting the efficiency of the epinephrin which would be secreted simultaneously.

ABSTRACT OF DISCUSSION

Dr. A. J. Carlson, Chicago: I have been very greatly interested in this line of thyroid work. I should like to ask whether these records of the electric response of the thyroid were in animals under anesthesia. I should like to know if, on continued stimulation of the cervical sympathetic for half an hour, whether the secretion and the electrical response continued for that half hour or possibly longer. Does the electric response continue, in the case of the salivary glands, as long as the secretion? In other words, I am not certain that the electric response is the true measure of the duration or extent of the secretory activity. I do not know, possibly Dr. Cannon can tell us, whether parallel experiments have been made on the kidneys, an organ undoubtedly controlled through chemical stimuli. On the introduction of a diuretic which acts for an hour or an hour and a half, do we get a continued proportional electric response from the kidney? I asked the question regarding the continued anesthesia because as I recall Dr. Elliott's work on the suprarenals, he makes the statement that by repeated injections of the same strength and amount of epinephrin one gets absolutely identical vasomotor responses. There seems to be a contradiction here between Elliott and Cannon. I am not certain that the changes in the suprarenals after the thyroid nerve anastomosis are in any way related to hyperactivity of the thyroid. After complete thyroidectomy (young rabbits), we invariably get a hypertrophy of the suprarenals to two or three times their normal size. My colleague, Dr. Bensley, who has had the privilege of examining some of the thyroids of Dr. Cannon's cats, tells me that the histologic picture of those thyroids is not that of hyperplasia. On the contrary they appear to be atrophic.

Dr. Emil Goetsch, Baltimore: During the past year I have been in the habit of testing out the sensitiveness to epinephrin of patients suffering with thyroid trouble, not only those suffering from hyperthyroidism but also from hypothyroidism, colloid goiter, and adenomatosis, and acute toxic hyperplasia. It has been uniform in my experience that in the hyperthyroid cases, especially in the early stage, in which we think that there is a very marked hypersecretion of the gland, and hence a hyperthyroid condition of the blood, in all these cases the reaction to a very small dose of epinephrin when given hypodermically is extremely acute.

The clinical picture is also markedly exaggerated. All the symptoms which we regard as typical of marked hyperthyroidism become very much exaggerated. An equivalent dose of epinephrin given to a patient with colloid goiter is almost without effect whatever. Similarly the effect on a normal person is slight.

Then, too, as indicating the degree of hyperthyroidism present, it is interesting to note the effect of the epinephrin after operation. When one does a lobectomy (on one side

or both sides), the greater the amount of the gland removed the less the reaction to the epinephrin afterward. This, I think, is an additional fact to corroborate Dr. Cannon's experimental work. In other words, the greater the degree of hyperthyroidism present, the greater we find the reaction to hypodermic administration of epinephrin.

With reference to the sensitiveness of the sympathetic in hyperthyroid conditions, it is interesting to note the effect of epinephrin on the eye. When 2 drops of a 1:1,000 solution are instilled into the conjunctival sac, there is almost complete blanching of the vessels of the conjunctiva, whereas in a normal person there is none of this even after repeated amounts have been put into the eye. In hyperthyroidism, there is a marked dermographia, a sympathetic reaction on the part of the skin to a scratch, or any other mechanical irritation. If one injects intradermally from 1 to 2 minims of a 1:1,000 solution of epinephrin there is a marked blanching in an area of considerable size, which is almost like a necrosis, surrounded by a very large areola of a bright reddish blush. This central vasoconstriction with the peripheral dilatation lasts from an hour to an hour and a half, and it is interesting to watch the reaction between the central white and the peripheral reddening. In a normal person this same reaction shows a very slight central blanching, and a very slight peripheral dilatation, and in about twenty minutes to half an hour the reaction is entirely gone. We see then that there is a very marked reaction locally to an intradermic injection of a minute dose of epinephrin in cases of hyperthyroidism, whereas in colloid goiter or even in normal cases this reaction is very slight.

DR. WALTER B. CANNON, Boston: One of the first difficulties we had was with anesthesia. Urethane gave an admirably quiet preparation, but we could not get responses from the thyroid if we gave the usual dose of urethane for anesthesia. We could not get the characteristic response if we used very deep ether anesthesia. So we used only so much ether as would result in a quiet preparation. We tried to get rid of an anesthetic altogether by destroying the central nervous system to a very large degree, but that lowered the blood pressure to such an extent that we thought probably we were making the animal more abnormal by that procedure than by light ether anesthesia. The question was also raised as to whether the electric change is really concomitant with activity, i. e., whether it is not a brief momentary appearance at the beginning of the activity, disappearing though activity continues. No very exact studies have been made of that matter, but I may say that a dose of pilocarpin, which has the effect of producing a prolonged secretion of the submaxillary gland, causes a concomitant electric difference that persists during the entire period, and promptly disappears when atropin is given.

The histologic appearance of the overstimulated thyroid gland has been mentioned. We have not obtained the characteristic hyperplasia of the thyroid that is observed in most cases of exophthalmic goiter in man. Dr. Homans, however, who worked with the Bensley technic, has studied these preparations, and says that the cells look like those of the islands of Langerhans, after partial extirpation of the pancreas, when apparently there has been an overdemand made on them, that is, there is "hydropic degeneration." It seems possible that what has occurred in these cases is a very much more acute condition than is usual in exophthalmic goiter—a stimulation of the thyroid which has not allowed any sort of hypertrophy or compensation, an activity of the cells so great that they have poured out their secretion so vigorously that they have actually been used up in the process. Certainly, the animals go to pieces with extraordinary thoroughness. They show no signs of infection. They have no characteristic rise in temperature, they eat enormously, and yet they continue losing weight until they become so wasted away that they are mere skin and bones. The eye, which may be prominent at first, becomes actually sunken into the head because of the disappearance of the fat about the eyeball.

I was unaware of enlargement of the suprarenals in cases of removal of the thyroid. Certainly, in these cases there has been no removal of the thyroid, and we have much evidence of increase in the activity of the gland. There is other evidence than that I have presented, which indicates that thyroid material causes hypertrophy of the suprarenal. It seems reasonable to expect, therefore, that overactivity of the thyroid or increase of thyroid material in the blood will result in an increase of the suprarenal size.

SOME CLINICAL STUDIES OF THE PROBLEMS OF CEREBRAL TONE*

CHARLES K. MILLS, M.D.
PHILADELPHIA

During the last five or six years some important additions to our knowledge of muscle tonicity and the more generally inclusive topic of cerebral tone have been made by clinicians and pathologists. The clinical bearings of cerebral tone, which have usually been left for the discussion of psychologists, are becoming more and more recognized by neurologists, who are finding in their study some matters of practical value in diagnosis and treatment, especially the former.

In many forms of cerebral and spinal disease, as, for instance, in hemiplegias, diplegias, jacksonian spasms, perseveration, catalepsy, catatonia, atonic and spastic paraplegias, disseminated sclerosis, tabes, amyotonia, dystonia and Thomsen's disease, the presence and pathogenesis of muscle tonicity are of especial interest.

In a large majority of the cases of permanent hemiplegia — hemiplegia persisting as a marked loss of power for more than six months — the general picture as to contracture or spasticity is that well known to neurologists, and such as has been described in numerous treatises on nervous diseases.

Under the designations "early and late contractures," certain interesting phenomena of tonicity have been discussed by nearly all writers of neurologic textbooks and by many contributors to current neurologic literature. The so-called early contractures in hemiplegic cases are usually observed in apoplexy of marked severity, as, for instance, that in which a hemorrhage breaks through the cerebral substance into the lateral ventricles. These early contractures, as indicated by Oppenheim, are usually attributed to irritation of the pyramidal fibers. Developing within a few hours, if death does not supervene, as not infrequently happens, these may disappear after a short period, that is, in the course of a few days. The musculature of the paralyzed side of the body in these early contractures is affected generally, the spasticity not assuming the usual forms observed in the so-called late contractures.

Late contractures which have received much attention since almost the earliest days of the study of hemiplegia usually come on after a period ranging from two weeks to as many months. Sometimes they do not begin to be noticeable until three months after the apoplectic attack, but development as late as this is comparatively rare. The condition as to tonicity may be fairly regarded as permanent after the lapse of six months. It is generally held that permanent contracture increases with degeneration of the motor centers and tracts. While this is correct, it is now believed that it is not a sufficient explanation of such contractures, to say that they are due to secondary degen-

* Read before the Section on Nervous and Mental Diseases at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

eration. In this connection it might be recalled that a number of competent observers have reported cases of hemiplegia and diplegia with necropsies and microscopic examinations, in which lesions of the pyramidal fibers were absent, although in some instances these fibers were of finer caliber than is normal.

Some revision of the descriptions usually given of cases of permanent contracture is desirable. The unusual differences as to spasticity and flaccidity (hypertonia and hypotonia) exhibited by different cases have received comparatively little attention. The excellent description given by Oppenheim[1] of the state of permanent contracture usually observed in hemiplegia is correct so far as it goes, but there is no particular stress put on exceptional cases. Oppenheim says:

> The arm is usually in the following position: the upper arm is adducted, the forearm bent at a right or acute angle, the hand flexed and pronated, the fingers flexed either in all the joints or in the interphalangeal joints only. A contracture of the arm in the position of extension is rare. When the contracture is slight, the fingers can be extended. The leg is in the position of extension, the foot usually in the equinovarus position. Flexion contracture of the legs is very uncommon (cases of Prochátzka, David-Gallavardin, etc.), and occurs only under unusual conditions. The contracture seldom extends to the facial, and most rarely of all to the hypoglossus.

This description would answer in a general way for the cases of my series, but in a study of the question of spasticity and flaccidity it is not sufficiently explicit. It fails, for instance, to indicate that in some cases varying conditions of flaccidity and spasticity may be present in the same contractured limb.

A particular study of forty cases of hemiplegia was made. In the present preliminary contribution I shall not attempt to give any tabulated summary or elaborate consideration of the facts of tonicity exhibited by these patients, merely calling attention, for the purpose of awakening discussion, to some exceptional conditions.

In some cases of hemiplegia of several months' or years' standing, an admixture of flaccidity and spasticity will be found in the same limb, a fact which has some significance, especially in the diagnosis of the extensions of the lesion and the mechanism of the production of aberrant muscle tonicity. As a rule, if one part of the limb is spastic, as for instance when the musculature causes flexion at the elbow, the whole extremity will be set down in the notes as spastic or hypertonic, and yet closer examination will show in not a few cases that this is not correct. One or two examples may be given:

In a case of left hemiplegia of five years' standing in the intervals between voluntary efforts which could be made with the partially paralyzed upper extremity, the arm remained in a position of slight flexion at the elbow and was flaccid. The hands and fingers could be fully extended passively and could be moved in any direction. In them there seemed to be an admixture of hypertonicity and flaccidity, the former more so in the metatarsophalangeal joints. The case was evidently one both of loss of power (true motor paralysis) and irregular innervation. In this case the lower extremity was much more paralyzed and spastic than the upper, the hypertonicity being in proportion to the retention of power.

1. Oppenheim, H.: Text-Book of Nervous Diseases for Physicians and Students, translated by Alexander Bruce, ii, 687.

For many years I have been in the habit of noting the presence of flaccidity or extreme hypotonia in hemiplegic cases at different periods after the apoplectic attack. In most cases this hypotonia is marked at the time of the apoplectic onset and for a greater or less period (hours, days or weeks) afterward. It is not necessary for me to enumerate special observations, which would constitute a mere piling up of well known facts. One type of case not infrequently seen is illustrated by a patient recently observed:

This patient, a woman of middle age, suddenly became a left hemiplegic. Paralysis of the limbs was total and flaccid or flail-like. It continued without change as regards tonicity for a period of about twelve weeks, and then began to give evidences of oncoming spasticity, slight in degree, this gradually increasing and spreading, but never becoming marked, at least during an observation extending over several months. I have observed other cases, especially at the Philadelphia General Hospital, in which total flaccidity continued for several weeks or months and was then gradually replaced by spasticity or an admixture of spasticity and flaccidity.

Permanent flaccidity or total toneless paralysis, that is, absolutely atonic hemiplegia, is comparatively rare, and doubtless in different cases requires special explanation.

> A woman, aged 52, was examined seven months after the apoplectic attack. The left upper extremity was absolutely flaccid or atonic and powerless. The patient could not move the arm, forearm, hand or a single finger. When the limb was dangled, the hand assumed a wrist-drop position with the fingers somewhat flexed, this being due to the weight of the paralyzed hand. Tonic innervation was not present in this extremity. The arm as compared with the other arm was somewhat larger, this probably being due to lost vasomotor tone. The left lower extremity, like the left upper, was completely toneless and powerless. The leg lay rotated outward at the hip and was a helpless mass in any position in which it was placed. The whole lower extremity, like the upper, was somewhat swollen. No plantar reflex and no knee jerk could be obtained. Sensation appeared to be somewhat impaired, but not markedly.

The notes on the following case were made only three months after the oncoming of the paralysis, and of course the conditions as to flaccidity and hypertonicity may have changed later. However, the case is instructive as showing the continuance of complete flaccidity in the upper extremity for at least the time named, while a spastic condition was present in the lower limb. In both the upper and lower extremities the motor paralysis was absolute.

> The patient, a woman, aged 47, was paralyzed on the left side of the body without unconsciousness. The left side of the face dropped. The left upper extremity was completely powerless and toneless. Sensation was retained in this extremity, and muscle and tendon jerks were plus. Wrist clonus could sometimes be elicited. The left lower extremity was kept somewhat extended and was rigid at the knee. It was not possible to throw the leg into different positions, as in the preceding case. Sensation was retained and a Babinski response was present. It was difficult to bend the leg at the knee, although this could be done by the exercise of considerable force.

Quite recently I observed a case of total flaccid left hemiplegia. The toneless paralysis was comparatively of recent origin, but so complete as to be worthy of special attention. A fuller report of the case will probably be made later.

The most important symptoms in this case were intense and frequently recurring pain in the head, nausea and projectile vomiting at times; papilledema in a comparatively early stage, and on the focal side, complete atonia or flaccid paralysis of the left upper and lower extremities with some paresis of the face of cerebral type, jacksonian epilepsy beginning in the left side of the face, astereognosis, impairment of cutaneous and muscular sensibility, and somewhat increased deep and superficial reflexes without, however, a Babinski response. The patient showed also considerable mental hebetude.

Necropsy in this case showed an abscess occupying the greater part of the parietal lobe. It extended to the motor region, but as far as Dr. William G. Spiller could determine at the time of the gross examination made by him, it did not extend into this region. In extent the abscess was from above downward about 2 inches, from before backward about the same, and from within outward about an inch and a half in diameter. The lower level of the abscess was just below the upper portion of the callosum, and it reached close to but did not involve the cortex.

This case is of particular interest in connection with the question of the part played by sensory impulses in the development of cerebral tone. Hypotonia or flaccidity is one of the commonplace observations in cases in which the sensory pathway from the periphery to the cortical areas concerned with sensation are largely destroyed. One needs but to recall the common condition present in ordinary advanced tabes and destructive lesions in various positions along the sensory pathway, as in the tegmentum, thalamus and parietal lobe which have been recorded in cases of flaccid palsies, these being in most cases associated with more or less anesthesia. The stimuli which reach the frontal lobe from the periphery and are the constant feeders of cerebral tone are by such lesions cut off, and tonic innervation suffers.

Now and then a case is encountered in which the tonic innervation is of such special form as at once to attract attention. In most cases after several years' standing the upper limb will be strongly contractured in flexion at the elbow with flexures also at the wrist and fingers. Occasionally, however, a case is seen in which the entire upper extremity is in a condition of hypertonicity, and this so generally expressed in the extensors and flexors alike that the limb continues in an extended position.

For example, in a middle-aged hemiplegic whose paralysis was of about four years' standing, the arm was extended and hypertonic. The hand was contractured and somewhat flexed at the carpus and extended at the metacarpophalangeal joints.

Perseveration or "tonic innervation" is the subject to which neurologic attention has been directed largely through the observations and discussions of Liepmann, and Kinnier Wilson and Walshe.[2] The latter have defined this term "as the inability owing to a central lesion to relax innervation in any muscular group or groups." The term was invented by Liepmann, who first described it in connection with a case of apraxia.

Wilson and Walshe describe three personal cases:

In the first two "tonic innervation" or perseveration was present in the limbs of the left side, especially in the upper extremity. In the same cases evidence was present of involvement of the corticospinal pathway in the form of hemiparesis and slight spasticity. In both of these cases the symptoms were left sided. The general symptoms of brain tumor were present. In both cases operation was successfully performed, and endotheliomas of large size removed, the operations resulting in complete relief from the perseveration, but leaving marked postoperative hemiplegia. Apraxia was not present in either case.

In the third case, "tonic perseveration" and marked motor apraxia were exhibited associated with paresis and spasticity of moderate extent, indicating implication of the pyramidal system. The perseveration in this case was illustrated, especially in the inability of the patient to relax after grasping objects or closing the hand, but the tonectic phenomena were also well shown in movements of all parts of both the upper and lower extremities, although much more decidedly in the upper. The tumors revealed and removed by operation in the first two cases were so situated as to involve the superior and middle frontal convolutions and their subcortex from a point just in front of the central fissure forward. In the third case operation was not performed, and the exact nature of the lesion present was not determined.

Besides the case of Liepmann, Wilson and Walshe refer to other cases of Steinert, Van Vleuten, Kleist, Kurt, Goldstein, Kroll, Coriat, Rhein, Macfie Campbell, and Pick.

In true "tonic innervation" the volitional act is the disturbing element. The fundamental defect in "tonic innervation," according to Wilson and Walshe, is not of a psychic but of a psychomotor nature.

They emphasize the fact that "tonic innervation" and apraxia are separate and independent symptoms, although they may occur together.

An important fact in connection with the study of "tonic innervation" or perseveration is that which is indicated in the statement of Wilson and Walshe "that the corticospinal system for the limb in which 'tonic innervation' is found is not functionally normal: at the same time the involvement must not be too great. As a corollary," these writers say, "the remark may be made that tonic innervation is not dependent on, nor does it proceed *pari passu* with, hypertonicity of pyramidal origin."

Wilson and Walshe make an interesting comparison and draw analogies between "tonic innervation" and myotonia congenita or Thomsen's disease and myotonia atrophica, holding that "as far as the actual symptom of inability to relax a contracted muscular group is concerned, no clear or unequivocal distinction can be drawn between its manifestation in the latter of these conditions as opposed to the former." My own observations which cover cases of each of these different forms of aberrant tonic innervation are confirmatory of this view. I am firmly of the opinion that the phenomena in Thomsen's disease and in myotonia atrophica are not myogenic, but of central (cerebral and spinal) origin.

In conclusion I shall give in detail the notes of a most instructive case of perseveration:

A. L., a white male, aged 37, unmarried, a marine, while located in the Panama Canal Zone, had an attack in July, 1912, of hemiplegia or hemiparesis accompanied by aphasia. The attack was not connected with any injury and came on while the man was at luncheon. He remained in the Ancon Hospital about six months, during which time he relapsed several times with fresh cerebral attacks, probably hemorrhagic in character. His hemiplegia almost entirely cleared up; the aphasia only in small part. Dr. W. E. Deeks, who conveyed these facts in a letter, also stated that he had a pyelonephritis due to a *Bacillus pyocyaneus* infection. He had at the time when he was first seen by me jacksonian epileptic seizures involving chiefly the right arm. When the examiner offered to shake hands with him he refused, intimating by pantomime that he was afraid he would injure the proffered hand. His reason for this was quickly seen when he was offered the handle of a percussion hammer. This he grasped

2. Wilson, S. A. Kinnier, and Walshe, F. M. R.: The Phenomenon of "Tonic Innervation" and Its Relation to Motor Apraxia, Brain, 1914, xxxvii, Part II.

tightly, and it could not be dislodged from his hand for some time. He was then told to make a fist, and when told to relax the hand he could not do so, and the examiner was unable with his two hands to unclasp the fingers.

Examination of the upper extremities showed that on the right side the triceps and biceps reflexes were increased, being normal on the left side. Plantar stimulation caused plantar flexion on both sides. On the right side plantar stimulation caused a reflex of defense, but not extension of the great toe. Pain, touch, heat and cold senses were normal. In walking, the right foot dragged slightly. Station was unaffected with the eyes open or closed. Mentality was good. He was a motor aphasic, having a few short expressions only.

An eye examination was made by Dr. H. M. Langdon, who reported that the pupils were equal, regular, and reacted to light and accommodation; 9/10 normal vision on illiterate card; media clear; disks normal in color and outline; no changes in the fundi; no hemianopsia, and cranial nerves normal.

Wassermann examination proved negative, as did also the general investigation of the blood and examination of the urine.

Shortly after he was admitted to the nervous ward of the hospital, Dr. William G. Spiller happened to be in the ward when this patient had an attack of jacksonian spasm, preceded and accompanied by phenomena of perseveration. He dictated at once the following account of the seizure:

"When first seen by me the hands were firmly clasped together, and it required much effort to separate the fingers even of the left hand. So soon as the hands were separated the left hand was found to be in a normal condition. There was no spasticity of this hand, and yet while the hands were clasped it required effort to raise the left fingers, from which it seemed that there was also spasticity in the left hand. It is remarkable, however, that immediately after the left hand was released there was no spasticity in this hand. The right hand remained in strong clonic spasm. In a few minutes the right fingers could be moved voluntarily very slowly and to a very limited degree. During the early part of the attack the right lower limb was not affected, but five or ten minutes after the beginning of the observation the right lower limb presented a tremor involving all parts of the limb, but not causing displacement of the limb at any joint. The right upper limb then presented clonic spasm involving the whole limb and lasting possibly two or three minutes. This then yielded to a tonic spasm. The right hand seemed to be more involved in the tonic spasm than any other part of the limb. The attack lasted fully twenty-five minutes, and at the end of this time there was fine tremor of the whole right upper limb and whole lower limb. At this time weak movements could be made voluntarily of the whole upper limb."

Although the general symptoms of brain tumor were absent, in the light of the cases of Kinnier Wilson it was thought that possibly a tumor or cyst might be present in the left midfrontal region, and it was believed that an operation could at least do no harm and might give some relief. Dr. Charles H. Frazier operated, Jan. 27, 1915, making a left frontal osteoplastic flap. No tumor or meningitis was discovered, but the brain presented a somewhat unhealthy appearance with lack rather than excess of pressure and slightly sunken outlines. It was probable that the patient had suffered from an attack of infectious encephalitis with repeated small hemorrhages. The symptoms presented after the operation were practically the same as those before, with the exception that there seemed to be less dragging of the right leg.

The following is a summary of notes made about three months after the operation:

The patient's station and gait were good. He was quite firm and steady and did not tend to drag either foot. Examining the right upper extremity and comparing it with the left, the patient had all movements of all parts of the limb—shoulder, arm, forearm, wrist, hand, etc. The left upper extremity, like the left leg and left side of the body generally, was practically normal as to power, testing him for strength by duplicated active movements. Astereognosis was not present.

He could say a few things such as "No ma'am," "Can do it," "Yes," "No," "This here," etc.

When tested for apraxia with a key, dumbbells, opening a knife, and sharpening a pencil, etc., he performed all the tests well with the exception of the dumbbells. In this test he was supposed to place the dumbbell held in his right hand on his left shoulder. In attempting to perform this he either placed the dumbbell behind his head or on the left side of his neck.

When the patient flexed the right forearm on the arm, not only the biceps went into powerful contraction, but also the triceps. During the examination the patient's right hand suddenly became flexed, and the muscles of the forearm, both flexors and extensors, became hard. This persisted for two minutes by actual timing, and during the attack he was unable to relax the innervation. At the end of two minutes the fingers slowly extended, and the muscles of the forearm relaxed. The muscles of the left arm and the lower extremities were not involved; neither was the face, and there was no disturbance of consciousness.

Directed to flex his forearm on his arm, the patient began and continued to do this with the appearance of great effort, the arm slowly flexing against resistance and with the apparent help of other muscular groups than those usually employed. On examination of the extensor muscles (triceps, etc.), it was found that these were in active tension and contraction, showing that the difficulty in flexion appeared to be due, in part at least, to the fact that the excessive tonic innervation was universal, or was both of the extensors and flexors of the forearm. In other words, the extensors were not in the relaxed condition usually found when strong flexion of the arm occurs.

Many years ago (1886) I recorded a case of myotonia which at that time I regarded as of hysterical origin, partly because the patient was cured or vastly improved as the result of treatment, this being the repeated applications of the actual cautery to the back of the neck.[3]

In 1891 I[4] published an account of two remarkable cases illustrating tonic innervation and tonectic phenomena of unusual interest.

One of these was probably an instance of Thomsen's disease, although I could not obtain any family history. All parts of the musculature of the body were liable to sudden "locking." The patient had many falls as the result of the sudden access of what might be termed universal active perseveration. In opening and shutting the hands, in opening the mouth, in rising from a recumbent or sitting position, and in numerous other ways, all of which are detailed, some of them with photographs, this patient presented in extreme degree the phenomena of tonic innervation usually induced by volitional effort, although coming on at times without apparent interference of the will.

In the same article in which this case is recorded I published an account of another case of myotonia and athetoid spasm which is cited by Wilson and Walshe, who speak of it as difficult to classify, while regarding it as unique. These writers say that the indications all point to the lesion being of central origin. In their search for literature they overlooked the fact that subsequently an account of the necropsy on this patient was published by me.[5] Besides the myotonic and athetoid phenomena this patient had marked disturbances of sensation. The following partial summary of the findings at the necropsy shows that both an irritative and destructive meningoencephalic lesion extended over a large part of the convexity of both hemispheres, the pathologic conditions being most pronounced in the parietal region:

The calvarium was dense and heavy. The dura was unusually adherent and nowhere translucent. The pacchionian

3. Mills, C. K.: A System of Practical Medicine by American Authors, edited by Drs. William Pepper and Louis Starr, v, 241.
4. Mills, C. K.: Myotonia and Athetoid Spasm, International Clinics, April, 1891, Series 4.
5. Mills, C. K.: Jour. Nerv. and Ment. Dis., December, 1891.

depressions were not unusual. Over the central part of the lateral surfaces of both hemispheres, that is, chiefly over the superior and inferior parietal gyres, the dura was adherent to the pia. The pia was deeply injected, thickened, and infiltrated with plastic lymph, and in numerous places were more or less firm attachments to the brain substance; but the injection, infiltration, exudation and adhesions were much more marked in the posteroparietal regions than elsewhere.

Beneath the area of meningitis, both the cortex and the subcortex were softened, giving the appearance of a sunken subcortical or subpial cyst. On the opposite (left) side of the brain in a nearly corresponding but somewhat smaller area was a similar belt of inflammation and softening. Subsequent incisions on both sides showed that the softening included the whole of the gray matter, and involved to a considerable extent the white, but did not invade the ganglia or capsules; it was confined to the supraventricular corona radiata.

The vessels at the base were somewhat stiffened, but no other brain lesions were discovered.

As indicated in the previous notes of a series of cases of hemiplegia observed, variations in the degree and character of the permanent contractures, or the entire absence of contractures, were matters of paramount interest. Numerous theories as to the occurrence of persistent contractures in hemiplegia have been advanced and discussed, but none of these have proved entirely satisfactory. Some of the older observers simply contented themselves with the statement that the contractures were due to the secondary degeneration following lesions of the corticospinal motor system, or that they were dependent on irritation of the neurons of this system remaining by the products of the degenerated fibers. In most of the theories advanced, the incompleteness of the destruction of the pyramidal apparatus has been given as a partial explanation of the contractures. With complete destruction of the pyramidal tracts, as in total transverse paraplegia and rare cases of total hemiplegia, flaccidity or atonia are the striking manifestations, as was illustrated in some of the cases studied for this paper. It has been held, in other words, that the contracture was in a degree proportionate to the amount of paralysis present.

In the consideration of such questions as contracture and aberrations of muscle tonicity in general, the result of organic lesions (hypertonia, hypotonia, dystonia, perseveration) attention is too strictly confined to the pyramidal motor system. It is true, of course, that through the corticospinal motor apparatus and its musculature, the phenomena of muscle tonicity are exhibited, but it does not follow that tonus is primarily a pyramidal quality. The whole subject of aberrant muscle tonicity is much simplified by the recognition of the existence of a tonectic apparatus, that is, an apparatus for maintaining tonic innervation, extrapyramidal and therefore structurally distinct from the pyramidal system, although necessarily connected with it. In a previous paper[6] I have endeavored to present this view.

Tone is necessary for the rhythmetization of movement both voluntary and automatic. Tone, at least in the human being, is not a spinal or cerebellar attribute, but belongs to the cerebral cortex, becoming more cortical, as Crocq has shown, as we ascend from animals lower in the scale, the frog, the dog and the ape, for instance, to man. That the cortex of the cerebrum is the seat of tone is not a new idea. It has been held by many, the views of those expressing the theory, however, being somewhat diverse. In most instances the pyramidal motor cortex seems to be regarded as the rendezvous and storehouse of the tone derived from sensation and idea. The cerebral tonectic apparatus, I believe, is structurally separate from the motor projection systems. It has special cortical areas of representation, and these are connected by fiber systems with the sensorimotor executive apparatus on which tonectic excitations exert their influence. Regarding the frontal cortex from the central fissure to the anterior pole of the brain as subdivided into a prefrontal, a midfrontal and a postfrontal (motor) region, the cortical tonectic zone is chiefly midfrontal. The striatum is an association or integration region where are regrouped the excitations from the differentiated cortical centers for tone. Wilson holds that higher (cerebral) centers concerned with tone must be conceded, and that there is increasing evidence that muscular tone depends to some extent on the reaction between the "basal ganglia" and the cortex and especially the intermedioprecentral cortex.

The midfrontal or intermedioprecentral region is the cortical seat or rendezvous of tone, the place to which stream the affects or tone impulses of the sensory centers of the cortex. Separate cortical tonectic centers constitute together a cortical tonectic zone. This area is not necessarily topographically entirely segregated from the pyramidal motor cortex. Each motor center probably has its separate outlying cellular tonectic annex or dependency, these centers of tone lying in the main anterior to the motor centers proper.

I need not further recall the data and views expressed in this paper on muscle tonicity. Admitting its validity and turning to the question of persistent contracture or any other phenomenon of aberrant muscle tonicity, as perseveration, the explanation of the conditions presented becomes comparatively simple. In the first place, if tonic innervation is supplied to the pyramidal system and exhibits itself through the activities of this system, it is clear that for normal rhythmetization of movement the pyramidal system itself must be intact. Pyramidal lesions, according to their location and extent, will interfere with normal tonic innervation. A complete transverse lesion of the spinal cord or of the internal capsule will block the transmission of tone-maintaining impulses to musculature innervated below the seat of the lesion. This would seem to be the simple explanation of the cases of flaccid or toneless paraplegia from transverse spinal lesions, and of at least some of the cases of flaccid hemiplegia from completely destructive capsular lesions.

When, as most frequently is the case, the lesions of the cord or of the internal capsule are incomplete, the tonectic apparatus remaining intact, innervation will be irregular or aberrant in its manifestations. Like the motor cortex, the pyramidal tract itself has its functional subdivisions, and according to the retention or loss of the fibers of these subdivisions, will be the residual spasticity or flaccidity (hypertonia and hypotonia). Herein lies the explanation of many of the irregular phenomena of muscle tonicity exhibited in permanent contracture.

The hemiplegic musculature may be variously affected in other ways than simply by lesions of the pyramidal tracts. The withdrawal from the sensory pathway of the peripheral stimuli which contribute to cerebral tone by destructive lesions situated anywhere in the sensory pathway will eventually influence muscle tonicity. This is exhibited in the phenomena of hypotonia presented by advanced cases of tabes, or again as in one of the cases cited in this paper by a large destructive lesion of the parietal lobe.

Lesions of the tonectic cortex (chiefly the midfrontal cortex) or of the striatum, will give aberrant tonectic

6. Mills, C. K.: Muscle Tonicity, Emotional Expression, and the Cerebral Tonectic Apparatus, Neurol. Centralbl., 1914, No. 24.

manifestations. The phenomenon of perseveration is particularly interesting in this connection. The cases so far recorded with necropsy support would seem to show that for its exhibition extrapyramidal lesions are usually to be sought for — lesions of the midfrontal (intermedioprecentral) cortex, of the striatum, or possibly of the ruber or thalamus. Usually in well marked examples of perseveration such as are referred to in this paper and have been recorded by Wilson and others, some involvement of the pyramidal system is indicated, although this is generally of moderate extent, the lesions being chiefly extrapyramidal. It was noteworthy in the series of cases studied for this paper that perseveration was rarely present, which is probably best explained by the fact that, in most of the cases of the series, destruction of the pyramidal tracts, while not complete, was large in extent. It is probable that in a few of the cases in which the contracture was exhibited, not in the usual irregularities of spasticity and flaccidity, but in a generalized excessive tonic innervation, the lesion present was in part at least extrapyramidal as well as pyramidal.

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ABSTRACT OF DISCUSSION

Dr. William J. Hickson, Chicago: In making a diagnosis of hemiplegias and diplegias in the feebleminded, I used the blood pressure apparatus in over 100 cases and invariably found marked changes in the registration even where it was very hard to make a clear cut diagnosis of spastic or flaccid paralysis. In regard to flaccid paralysis, for over a year I had opportunity to work with a well known authority and saw the outcome of his cases on which he was at that time specializing, and after all the work and manual training carried out in handling that sort of thing these patients were invariably worse; at the end of a year or two they had this tonicity which Dr. Mills has so well illustrated.

Dr. Julius Grinker, Chicago: I have in mind the various cerebral palsies of long standing, that show, in old cases, a certain degree of flaccidity combined, perhaps, with the movements that are called athetoid. In many of those cases the lesion was found either in the cortex or the subcortex. At the present time I have under my care a case similar to the one that Dr. Mills used as a basis for his hypothesis. A young man of about 19 came to me complaining of the symptoms of paroxysmal hypertonic contraction of the toes, preventing him from walking, for when he attempts to walk there occurs a sudden dorsal flexion of his big toe first in one foot and then in the other. He, too, presented the symptom of perseveration, or persistent muscular contraction in the muscles of the lower extremities. In recommending operative treatment in this case, I had in mind the probability of a cerebral lesion of obscure origin as to onset. It occurred to me that perhaps the operation of cutting certain posterior roots in the lumbosacral cord might benefit the patient. Dr. Elsberg of New York operated on the boy about four months ago and he is much improved. While the question of therapeutics is not relevant to this discussion, yet the fact that the patient is improved would tend to confirm my diagnosis of cortical or subcortical lesion. I could not believe that I had a lenticular lesion in that case. Dr. Mills has thrown much light on my case, and I believe there are many other cases of disordered motility which his theory will explain.

Dr. Foster Kennedy, New York: I saw Dr. Grinker's patient. I, too, advised operation, but I did not believe the patient had had an encephalitis. So far as I could ascertain, the onset of the extraordinary rhythmic involuntary contractions of his leg muscles developed very slowly and progressively over a number of years, and I did not feel that they could be due to any encephalitic process; but on the contrary I believed there was a distinct identification with those cases which Dr. Hunt speaks of as progressive torsion spasm of the pelvic muscles. Cases of obscure muscular tonicity of such character, without apparently any definite cerebral symptoms, occur quite gradually and are progressive in type. I am very much interested in the fact that operation was beneficial in that case.

Dr. J. Ramsay Hunt, New York: There can be no question but that the corpus striatum is a lesser motor mechanism which has to do with the control of associated and organic movements. And one of the essentials of that control is the control of tonus, because, as we have seen in Wilson's writings, if it is destroyed there is not only a paralysis, but a loss of control of tonus. With destruction of the cortex or pyramidal system, which is a much greater system, there is a loss of tonus. From our present knowledge therefore we cannot dissociate the loss of tonus from the loss of control. Dr. Kennedy has referred to my subject of progressive torsion spasm. It would seem that this is a disease of a lower tonus mechanism, even lower than the corpus striatum. This is evident when we stop to consider that as the nervous system has gradually developed in the course of evolution, there must and should be such a center as would serve to control tonus in automatic and associated movements. And it seems to me that there is good reason for believing that this mechanism is undergoing degeneration in such a disease as progressive torsion spasm.

Dr. Charles K. Mills, Philadelphia: The whole subject of tonus has been pretty thoroughly studied in the lower animals and up to man, as for instance by observers such as the Belgian, Crocq. My own views I tried to express—perhaps not so clearly—in the introductory remarks to my paper. About one thing I desire to be quite definite. I do not believe that in strictness tonus is a fundamental quality of the pyramidal system. If we are discussing a question like muscle tonicity, however, it is of course perfectly evident that muscle tone so considered can only be exhibited through a neuromuscular apparatus of which the pyramidal cortex and the pyramidal tract are a part. There is a tonectic system, both cortical and ganglionic, distinct from the pyramidal apparatus. The tone, however, must, so to speak, be delivered to the pyramidal system. In the cortex are differentiated tonectic centers and the striatum, or a part of it, is a structure, one of whose functions is to associate cerebral tone so that it may be applied to synergized movements. In man the centers concerned with tonic innervation are primarily cerebral and cortical. These centers of tone are charged by the inflow of sensation from the periphery, and also by the influx of ideational impulses, these being themselves primarily derived from sensation. As to the question of pelvic dystonia, as far as the very few cases I have seen are concerned, I do not believe the phenomena can be explained on any purely pyramidal theory, although it is always to be remembered that tonectic phenomena are expressed through the pyramidal system and its neuromuscular connections.

Appetite.—Appetite, as we know it, cannot be separated from our memory of past experience with food, that is, the taste, smell and appearance of food. In fact, it appears to be essentially pleasant memory processes of these past experiences, and the "urge" in appetite may be only a special case of the general desire for pleasure. If this is the case, there can be no urge for food in the absence of past experience with food on the part of the individual, and as this is lacking in the newborn, the appetite urge must also be wanting. Hence it is not the factor that guides the newborn individual for the first time to abolish the pangs of hunger by ingestion of food. However, it is conceivable that appetite contains an elemental urge for food as an inherited mechanism and thus not dependent on individual experience, and that when the individual has such experience with food, memory processes of this experience fuse with or overshadow the inheritance factor, so that the two cannot be dissociated in consciousness. This inherited appetite urge, if it exists at all, is probably essentially a positive chemotrophism (smell, taste), although birds hatched sufficiently mature to seek their own food probably select or seek the food by vision rather than by smell.—Control of Hunger in Health and Disease, A. J. Carlson.

USEFUL DRUGS*

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Nearly ten years ago the Council on Pharmacy and Chemistry of the American Medical Association took up the discussion of the practicability of selecting a list of drugs on which teachers of pharmacology and therapeutics in medical schools might base their routine instruction, with which students and medical practitioners generally might be expected to be familiar and to which state examining and licensing boards might largely or entirely confine their examinations in materia medica subjects. The Council later secured the cooperation of the National Confederation of State Medical Examining and Licensing Boards, of teachers of pharmacology and therapeutics in practically all of the larger medical schools, and of a number of medical men in this country and abroad who were interested in the subject in a practical way. On the basis of the data secured from the criticisms and suggestions received from these various sources, a list of drugs was prepared. This list was further discussed, revised and finally adopted by the Council on Pharmacy and Chemistry and published in 1913, under the title "A Handbook of Useful Drugs."

The immediate object of the compilation was to have a selected list of drugs for use in medical schools and as a basis for examinations by state medical examining and licensing boards; the ultimate object was to develop a thorough knowledge regarding the uses and limitations of a few drugs rather than a smattering knowledge of many. A number of medical colleges have already adopted this little book as a text, and have found it very satisfactory. At least twelve examining boards, including Delaware, the District of Columbia, Hawaii, Kentucky, Louisiana, Michigan, Minnesota, New Jersey, New Mexico, Rhode Island, Virginia and West Virginia are now basing their examinations on the list of "Useful Drugs," and other boards will undoubtedly adopt the list in the near future.

The prospective publication of the ninth revision of the Pharmacopeia of the United States of America suggested to the Council on Pharmacy and Chemistry of the American Medical Association the desirability of preparing a revised edition of "Useful Drugs" to embody the requirements and standards of the new Pharmacopeia for the articles that are included in the list of useful drugs.

In connection with this proposed revision of the book an effort was also made to correct the composition of the list with a view of making the book represent as completely as practicable the present day status of drugs and preparations generally recognized as representative of the best in our available materia medica.

To secure the cooperation of men qualified to express an opinion on the subject, the Council directed that a circular letter and a dosage list of the articles included in the first edition of "Useful Drugs" be sent to teachers in medical schools and to a limited number of other practitioners who, it was thought, might be sufficiently interested to cooperate in a practical way.

The replies that were received to the inquiries included in the circular letter have been helpful in a number of ways, and it is expected that the revised edition of "Useful Drugs" will reflect, even more than did the first, the best and most reliable of the available drugs and preparations that are offered to medical men at the present time.

Several teachers in commenting on the list of articles in "Useful Drugs" have expressed the hope that the Council in the very near future might see its way clear to issue a still more restricted list.

From a practical point of view it would appear that a comparatively small book which students can carry to their classes and which they could use to refresh their memories would have many points of advantage and would go far toward developing a more complete and more comprehensive knowledge of the drugs and preparations used as medicines.

Physicians and others who can remember the very deplorable conditions that existed in this country some ten years ago, when the work of the Council on Pharmacy and Chemistry was comparatively new, will appreciate the need for thorough and systematic training in regard to the action and uses of drugs.

The reason formerly given for the lack of practical knowledge of the nature, properties and uses of drugs was that the very large number of drugs described in textbooks involved so much detail that it was practically impossible to pass to the student a working knowledge of these drugs in the short time that was available for his instruction in this particular branch.

For many years, therefore, a frequently uttered and admittedly valid criticism on the medical profession was that the newly graduated physician did not have even a superficial knowledge of the possibilities and limitations of the substances that he essayed to use in the treatment of disease.

To bring about some degree of improvement in the conditions as they existed a decade or more since, the Council thought it desirable to discourage the use of the vast number of drugs in which most of the modern critical clinicians have little confidence.

It is generally agreed that while imperative drugging or the ordering of medicines in any and every malady is no longer regarded as the chief function of the physician, the use of drugs is nevertheless more firmly established at the present time than ever before, and the well trained critical clinician of today is characterized by a firm faith in a few good, well tried drugs, and little or none in the great mass of medicines, both actively nauseous or practically inert, that are still in widespread use.

It is generally recognized among well informed practitioners that to secure uniform results from the use of drugs the physician must be assured that the preparation he is using complies fully with the requirements that have been established as necessary to secure the results that are to be expected. From this point of view the endorsement of the list of useful drugs as here outlined would offer possibilities for a decided improvement in the nature and purity of the drugs and preparations used in the treatment of disease. From the available reports on conditions existing in the drug trade at the present time, it is evident that the average pharmacist cannot well be expected to examine systematically or control all of the thousands of articles carried in stock by him as medicines. A more widespread recognition of the possible uses of the drugs included in the list of "Useful Drugs" would make it possible to develop the systematic control of a limited number of articles and thereby assure physi-

* Read before the Section on Pharmacology and Therapeutics at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

cians and others that the articles included in this list will uniformly comply with the official requirements.

As further argument for restricting the number of drugs to be generally discussed in textbooks or in medical schools, it may be reiterated that many of the available textbooks on pharmacology and therapeutics are mere compilations containing false statements, unproved theories and unverified clinical evidence representing the guess work of ancient uncritical observers. Many drugs have been and still are vaunted in textbooks as valuable in a variety of conditions for which scientific investigation and carefully controlled clinical observation have long since proved them to be totally worthless. Many other drugs have been shown to be of value only in an extremely limited number of conditions, and the Council feels that the sooner writers of textbooks realize this fact and enter into the spirit of the new era, the better for the public and for scientific medicine generally.

In compiling the list of useful drugs, particular attention was given to the reports of pharmacologic research and the application of scientific methods in the study of the physiologic action of drugs.

The list of useful drugs as now constituted is elastic, and there is no reason why new and valuable additions to the available materia medica should not be promptly included in the list, provided laboratory studies and the observations of critical clinicians agree that the new drug really represents a decided improvement or is in effect a specific for any given disease.

The list of useful drugs as now compiled is intended to include only such drugs and preparations as are generally used or are accepted as having a well established value either as medicine or as a necessary vehicle for more active substances. For practically all of the drugs and preparations now included in the list of useful drugs, methods of assay are available so that the purity and strength of the substance can readily be determined and, as suggested above, physicians can, if they will, secure practical uniformity by insisting that the pharmacist apply the comparatively simple tests that are included in the Pharmacopeia or other books of standards in which the composition and properties of the several articles listed in "Useful Drugs" are further described.

In round numbers, the present list of useful drugs includes 450 titles, of which 220 may be classed as drugs and chemicals, 175 preparations of these drugs, 42 as definitions of forms of drugs, and 13 as cross references.

The following articles included in the first edition of the book have been deleted from the present list: spiritus aetheris compositus calcii hypophosphis, calcii phosphas praecipitatus, cannabis indica, extractum cannabis indicae, magnesii sulphas effervescens, oleum rosae, tinctura cannabis indicae, resina, sparteinae sulphas, viburnum prunifolium and fluidextractum viburni prunifolii.

The drugs and preparations added to the list include: atophan and novatophan, chenopodium oil, emetine hydrochloride, hypophysis and solution of hypophysis, novocaine, picric acid, sodium biphosphate, staphylococcus vaccine and typhoid vaccine.

These additions and deletions have been endorsed by a number of practitioners, but the Council on Pharmacy and Chemistry would be pleased to have comments and criticisms from all who are in any way interested, so as to make this list all that it really should be: a truly representative reflection of the best practices in American medicine at the time of its publication.

CONCLUSION

1. Among the advantages to be derived from a general endorsement on the part of medical practitioners of the principles represented by the compilation designated "Useful Drugs" are:

(*a*) A proper knowledge of the possibilities and limitations of drugs as factors in the treatment of disease on the part of all ordinarily well informed persons.

(*b*) The thorough and systematic training of medical students in regard to the action, nature, properties and uses of drugs that are included in the list.

2. Training as here suggested would be a guarantee that coming generations of physicians have at their command a materia medica sufficiently comprehensive to meet all requirements. It would also insure more rapid and at the same time more rational progress in matters relating to the treatment of disease by the development of competent and critical observers.

3. The widespread use of a limited number of drugs would make possible the efficient control of all widely used drugs and preparations on the part of the pharmacist and thereby insure to physicians and their patients a supply of drugs and preparations of uniform nature and purity.

4. A thorough knowledge of the possibilities and limitations of drugs in the treatment of disease would naturally entail a proper appreciation on the part of the lay public of the fact that medicines to be really useful as medicine are physiologically active, and that misapplied they may disarrange normal metabolism and thus bring about untoward results.

ABSTRACT OF DISCUSSION

Dr. O. T. Osborne, New Haven, Conn.: On going critically through "Useful Drugs," I find very little to criticize. Last year the Connecticut Medical Society instructed its examining board to use this book for the state examinations on drugs. A radical step was taken this last year by the Yale Medical School in allowing the students to write prescriptions in English. Latin is not now required for entrance into most medical schools, and the mistakes in Latin on prescriptions are frequent and ridiculous. Also, if we decry the secrecy of proprietary mixtures, it is hardly advisable to be mysterious in prescription writing. For instance, let "aqua gaultheriae" be written "wintergreen water." The State Examining Board of Connecticut will accept these English prescriptions.

Dr. N. P. Barnes, Washington, D. C.: About five years ago I recommended to the American Therapeutic Association a form of proved drugs of proved value, standardized and classified. The association did not take it up, but I am glad to see that this section took it up. I am glad to hear what Dr. Osborne said about prescription writing. We spend too much time on prescription writing. We hammer at this year after year—the combining of four or five drugs in a prescription written in Latin. One of my students copied a prescription from a book. I do not know whether he copied it correctly or not, but he failed. It has only been a few years since we could educate doctors, as the majority went through in a two-year course. I think the question now is not so much to educate the public as to educate the medical profession in the matters of therapeutics. Any man you meet on the street can give you therapy—the whole public is full of it—you can get remedies suggested for anything that ails you from any person you meet. When I go into families I can tell how good a physician the family has had before. When you see a family well informed on hygiene and sanitation you can depend on it the family physician before me was a good doctor. After all,

it is the matter of educating the profession. After we get through teaching how to write prescriptions we should follow the students into the clinics because there is where they have the demonstration of their knowledge. The other day in a hospital in Washington one man wrote for 2 ounces of sodium sulphate in 4 ounces of elixir! Think of it.

DUODENAL CULTURES IN TYPHOID FEVER AS A MEANS OF DETERMINING COMPLETE CONVALESCENCE *

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Some statistics[1] regarding typhoid fever will show the object of this work:

1. Of every 10,000 apparently perfectly healthy residents, 2.3 are typhoid carriers.

2. Fifty-five per cent. of all typhoid cases are due to carriers either directly or indirectly; 17 per cent. are due to direct contact with carriers; in exact numbers, Gaehtgens[2] found that out of 386 cases, seventy-seven, or 20 per cent., could be traced to chronic typhoid carriers.

3. Park[3] has estimated that one in every 500 adults who never knowingly had typhoid is a typhoid carrier.

4. Of every hundred typhoid cases, from three to six become typhoid carriers.

Naturally, it must be remembered that typhoid carriers may be either permanent or temporary. Thus one can apply the expression *omnis typhus ex typho*. The ideal of prophylaxis in typhoid is therefore detection of typhoid carriers.

It should be the duty of hospitals and physicians taking care of typhoid patients to be certain on discharging their patients that the latter are not typhoid carriers. The usual way of determining this, when it is done at all, is by examination of urine and stool. The examination of the urine for typhoid bacilli is simple, the disadvantage being that as a general rule only a small percentage of cases continue to show typhoid bacilluria; usually the excretion of the bacteria is by the feces.

The examination of the feces is under ordinary circumstances attended with marked difficulty. The overgrowth by colon and other bacteria makes it necessary to have special mediums, of which great numbers have been advised. But even then success is difficult and not assured. The varied opinion and mode of procedure that different institutions all over the country have adopted for the discharge of their typhoid patients with special regard to urine and stool examination is indicated by statistics of Dr. F. S. Graves of the University of Louisville Medical Department. A year ago Dr. Graves sent the following question to the various institutions: Are repeated routine examinations made of (*a*) the urine and (*b*) stool from typhoid patients before their discharge from the hospital?

Answers were received from twenty-four of the leading hospitals in this country. Of these, only nine institutions examined the urine and stool of their typhoid patients before discharging them from the hospital. Eleven institutions disregarded such examinations entirely, five definitely stating that the technical difficulties associated with the inaccuracies of the findings in stool examination did not warrant the time spent.

One institution intended to take up the examination.

One examined these excretions only when the occupation brings the patients in contact with foods.

One examined the urine and not the feces.

One discharged patients even with bacteria in the urine, if these persistently remained there.

Thus is seen the difficulties which all have with the stool examinations.

The gallbladder or bile is the source of entry of the bacteria into the intestines, and numerous observers have attempted in various ways to get larger collections of bile for such examinations. For example, massage of the liver and then examination of the stool have been advised.

Foster and Moritz[4] gave cholagogue cathartics and then examined the stool.

Weber[5] advised cultures from the bile by means of the Volhard oil breakfast.[6] From 250 to 300 c.c. of sterile olive oil are introduced through a sterile tube after lavage of the stomach with sterile water. The oil is removed from the stomach in half an hour through a sterile tube. This incites a bile entrance into the stomach. In three cases of typhoid fever, the bile showed typhoid bacteria (Kiralyfi[7]).

I attempted the direct examination of the bile removed from the duodenum, as thus the difficulties from the great number of contaminating bacteria present in the stool are excluded, no special mediums are essential, and the bacteria are present in great numbers.

The bile was collected in the following manner:

Just before retiring, the patient swallowed the Einhorn duodenal tube. Next morning he received a fluid breakfast to assure the passage of the tube into the duodenum and stimulate the secretion of bile. About one and one-half hours afterward, the tube and duodenum were washed out with sterile water or saline solution by injecting 8 to 10 ounces of sterile water or saline solution through the tube, and in half an hour to an hour, aspiration with a sterile syringe brought forth large quantities of bile. I was surprised in several instances to be able to get as much as 20 or 30 c.c. of pure, clear bile. With the gravity duodenal tube of Palefski, it would not be necessary to introduce the tube the night before, as the heavy weight of this tube traverses the stomach rapidly, and enters the duodenum in from one to two hours.

Cultures of the bile were made in plain broth and on ordinary agar plates. Growths were identified as usual by fermentation tests and specific agglutination. At the same time that the bile was thus examined, cultures of the urine and stool were also made as controls. It was interesting to find that out of twelve typhoid convalescent patients thus examined, we were able to detect two in whom the bile still contained numerous typhoid bacteria, but the urine and stool examinations proved negative. The typhoid bacteria were present in almost pure growth.

Repeated examinations in both of these cases in two weeks showed the bile also free of typhoid bacilli.

* Read before the American Association of Immunologists, Washington, D. C., May 11, 1916.

1. Forchheimer: Vaccines and Serums, v, 224; Ergebn. inn. Med. u. Kinderh., 1913, xi, 203.
2. Gaehtgens: Deutsch. med. Wchnschr., 1909, xxxv, 1337.
3. Park, W. H.: Typhoid Bacilli Carriers, THE JOURNAL A. M. A., Sept. 19, 1908, p. 981.
4. Foster and Moritz: München. med. Wchnschr., 1908, lv, No. 1.
5. Weber: München. med. Wchnschr., 1908, liv, 2443.
6. Volhard: München. med. Wchnschr., 1907, liv, No. 9.
7. Kiralyfi: Berl. klin. Wchnschr., 1912, xliv, 1985.

While these patients were only temporary carriers, still, spread of the infection was possible if proper precautions were neglected.

In one case the bile and stool showed no typhoid bacilli, while the urine showed a profuse typhoid growth. This finding persisted on several examinations, proving the existence of a typhoid cystitis. It finally cleared up. It is not the object of the duodenal cultures to replace the examination of the urine. A typhoid infection of the urinary tract may persist for months without any infection of the bile or gastro-intestinal tract. A bacteriologic examination of the urine, therefore, is always essential. It is the aim, however, to replace the stool examination by the much simpler and apparently more accurate examination of the bile.

Gaehtgens[8] has shown that typhoid bacilli decrease in numbers in the intestinal tract as we pass downward from the duodenal opening of the bileduct to the rectum, and that they are to be found most constantly in the gallbladder. Flutterer[9] in 1888 first called attention to typhoid bacilli in the gallbladder, and now it is definitely known that the infection may be perpetuated in the gallbladder for many years following convalescence.

Kaspar[10] was able to detect typhoid bacilli in the bile removed from the stomach after a test oil breakfast seven years after an attack of typhoid fever.

Thus the idea of cultivating typhoid bacilli from the duodenal contents, rather than from the stool, was considered long ago, on account of difficulties experienced with stool examinations. In a series of cases, Kayser[11] found no typhoid bacilli on three repeated examinations of the stool, whereas later tests proved the individuals to be carriers.

In 1912, Dr. Hess[12] passed a duodenal catheter on a baby 22 months old, suffering from typhoid fever, in the beginning of the third week; a small amount of bile-containing fluid was aspirated from the duodenum, and from this fluid typhoid bacilli were cultivated in very large numbers. In that paper Dr. Hess suggested that this simple procedure might be of value in the diagnosis of typhoid carriers.

MacNeal and Chace[13] recovered typhoid bacteria from the duodenum in a case of relapse from typhoid. Einhorn[14] reported a case in which I recovered typhoid bacteria from the duodenum of a typhoid carrier. Whether or not examination of the duodenal contents can be of aid also in the early diagnosis of acute typhoid fever is an interesting topic for further study.

CONCLUSION

Cultures from duodenal contents (bile) removed by means of the duodenal tube seem to be a more reliable and simpler method for the detection of typhoid bacilli than stool examinations.

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8. Gaehtgens: Berl. klin. Wchnschr., 1912, xlix, 296.
9. Flutterer: München. med. Wchnschr., 1888, p. 315.
10. Kaspar: Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1913, xxvi, No. 5.
11. Kayser: Arb. a. d. k. Gsndhtsamte, 1906, xxiv, 173.
12. Hess: Jour. Infect. Dis., July, 1912, xi, 71.
13. MacNeal and Chace: Tr. Am. Gastro.-Enterol. Assn., 1913, p. 26.
14. Einhorn: Tr. Am. Gastro.-Enterol. Assn., 1913, p. 52.

A Measure of Greatness.—A great clinician is remembered either by his original contributions to scientific medicine or by the effect of his mind and personality on his time and on the pupils he has formed.—Armand Trousseau: A Master Clinician, Fielding H. Garrison.

THE RELATION OF DIET TO BERIBERI

AND THE PRESENT STATUS OF OUR KNOWLEDGE OF THE VITAMINS

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The title of this paper is very broad, and as a comprehensive discussion of it would carry me far beyond the limits assigned to papers of this character, I shall necessarily confine myself to certain phases of the subject.

At the present day, there is a general consensus of opinion to the effect that beriberi is caused by a dietary deficiency, or that it is a disease resulting from faulty metabolism, and is directly caused by the deficiency of certain accessory food substances that have been called vitamins. In a general way this opinion is based on the following facts:

1. The complete failure of the adherents of the infection and intoxication theories to prove their case.

2. The carefully planned and controlled human feeding experiment of Fraser and Stanton,[1] in which they demonstrated beyond all cavil that beriberi can be experimentally produced in men by too exclusive feeding on overmilled or highly polished rice. This experiment was later repeated by Strong and Crowell[2] in the Philippines with a similar result.

3. The long series of animal experiments which have been repeated with substantially the same results in all parts of the world and by which it has been equally demonstrated that various animals, but particularly birds, when fed on diets that will produce beriberi in man suffer with a disease which in some instances is identical in symptomatology and pathology with human beriberi, and in other instances is so similar that we must believe that it is essentially the same disease.

4. The instances in which beriberi has been eradicated from various institutions or groups of men by certain simple but radical changes in the dietary. Every sanitarian should be familiar with the practical results of this character reported by Van Leent,[3] Vorderman,[4] Takaki,[5] Fletcher,[6] Highet,[7] Heiser,[8] Theze,[9] Chamberlain[10] and others.

Inasmuch as I have written at some length concerning this evidence elsewhere,[11] I shall not go into it further here, but will briefly mention some of the work that has led us to our present knowledge of the beriberi vitamins. Eijkman's discovery that fowls develop polyneuritis, a condition resembling if not

1. Fraser and Stanton: Studies from the Institute for Medical Research, Federated Malay States, 1909, No. 10.
2. Strong and Crowell: The Etiology of Beriberi, Philippine Jour. Sc., 1912, vii, 271.
3. Van Leent: Arch. de méd. nav. October, 1867, p. 241; Communication sur le beriberi, Cong. Internat. d. Sc. Med. Amst., 1880, vi, 170, etc.
4. Vorderman: Onderzoek naar het verband tusschen den aard der rijstvoeding in de gevangenissen op Java en Madoera en het voorkomen van beri-beri onder de geinterneerden, Batavia, 1897.
5. Takaki: Three Lectures on the Preservation of Health Amongst the Personnel of the Japanese Navy and Army, Lancet, London, 1906, i, 1369, 1451, 1520, etc.
6. Fletcher: Rice and Beriberi, Jour. Trop. Med. and Hyg., 1909, xii, 127; Lancet, London, 1907, i, 1776, etc.
7. Highet: Beriberi in Siam, Philippine Jour. Sc., 1910, v, 73.
8. Heiser, V. G.: Practical Experiences with Beriberi and Unpolished Rice, Philippine Jour. Sc., 1911, vi, 1237; Practical Experiences with Beriberi and Unpolished Rice in the Philippines, The Journal A. M. A., April 29, 1911, p. 1238.
9. Theze: Note sur le beriberi a poulo-condore, Ann. d'hyg. et de méd. col., 1910, xiii, 16.
10. Chamberlain: The Eradication of Beriberi from the Philippine Scouts by Means of a Simple Change in Their Dietary, Philippine Jour. Sc., 1911, vi, 133.
11. Vedder, E. B.: Beriberi, New York, William Wood & Co., 1913.

identical with beriberi in man, when fed on an exclusive diet of polished rice, formed the entering wedge, and gave us an experimental animal. Eijkman also made numerous other additions to our knowledge, including the fact that the addition of rice polishings to the diet would prevent the disease. The next great step was made when Fraser and Stanton[12] showed that the protective substance was dissolved out of rice polishings by a 0.3 per cent. hydrochloric acid solution, and remained in solution even when sufficient alcohol was added to precipitate out the phytin. Chamberlain and Vedder[13] then showed that the protective substance was water soluble, alcohol soluble, but insoluble in ether, that it was dialyzable, adsorbed by animal charcoal, and that an extract of rice polishings containing only those substances soluble in both water and alcohol would cure infantile beriberi with marvelous rapidity. With the exception of the demonstration that infantile beriberi was curable by an extract of polishings, the work referred to above was all based on feeding experiments in which various extracts or substances obtained from rice polishings were administered to fowls subsisting on a diet of polished rice, and in which the *protective* power of the extracts was determined.

At this point in a brilliant series of researches, Funk[14] succeeded in obtaining from rice polishings a crystalline base which would promptly cure fowls that had already developed polyneuritis. Funk believed that he had succeeded in isolating this substance in a state of chemical purity, that it belonged to the pyrimidin group, and he even gave it an empiric formula, and coined the name "vitamin" for it. Vedder and Williams[15] found that, using Funk's method, they were able to obtain a crystalline substance which promptly cured fowls, but they were unable to obtain a sufficient quantity in pure form to subject it to accurate chemical analysis. At about the same time, Edie and his co-workers[16] obtained a similar curative substance but gave it a different formula, and Suzuki, Shimamura and Odake[17] by a different method obtained another vitamin of still different chemical composition. The careful chemist who reads these papers might come to the conclusion that the very existence of such a substance as the so-called vitamin was doubtful. However, the fact that such a substance exists is as well-proved as any natural fact can be. All of the foregoing investigators have succeeded in obtaining from rice polishings a chemical substance which in doses of a few milligrams was capable of curing birds suffering with polyneuritis induced by a diet of overmilled rice. But it is now evident that these investigators, and particularly Funk, were a little premature in announcing the chemical formula of the pure vitamin. Evidently none of them were working with pure vitamin, a fact which was admitted[18] by Drummond and Funk in a later article, who there state that they cannot isolate the pure vitamin, but that it is apparently decomposed during the fractionation and that all trace of it is lost. It should therefore be plain that while Funk's work gave a tremendous impetus to this investigation, neither he nor any of the foregoing workers succeeded in isolating pure vitamin, and that its chemical formula remains unknown. Williams,[19] however, now began an entirely new line of work. Guided by the information obtained in the previous analytic work on rice polishings outlined above, he succeeded in preparing, synthetically, substances that would cure polyneuritis in fowls. These substances display a remarkable dynamic isomerism which has a most profound influence on their antineuritic properties. The curative form of each compound readily undergoes at ordinary temperature a rearrangement of its atoms resulting in the formation of a physiologically inert substance. By the application of dry heat, the noncurative form can be readily reconverted into the curative one. Although the synthetic substances in which this physiologically important isomerism was first discovered were hydroxypyridins, it now seems possible that the antineuritic properties are not peculiar to them but are inherent in the type of isomerism of which they are capable. Later unpublished work of Williams and Seidell has furnished further evidence that a similar isomerism exists in the vitamin of yeast, and is primarily responsible for the instability of these compounds which has so far prevented their isolation.

The substance isolated from yeast which appears to display this isomerism is the well known purin base adenin. Just how narrowly defined the group of naturally occurring substances of this type may be remains for future investigation. Nothing is yet known as to the exact identity of the vitamin as it occurs in rice polishings or as to the chemical relation existing between vitamins obtained from various sources.

It is quite evident that this work indicating the importance of isomerism affords an idea which is quite as new and startling as the conception of the vitamin was three years ago. The study of dietetics from the point of view of the vitamins has only just begun, but it is evident that there are many of these accessory food substances which play an important rôle in metabolism, and that this fact must be taken into account in planning diets in institutions, and in interpreting the relation of diet to such diseases as pellagra.

The exact rôle which these vitamins play in metabolism has not yet been elucidated, and any opinions which have been expressed must be in the nature of tentative hypotheses. With regard to the antineuritic vitamin, I have proposed the hypothesis that this chemical substance acts as a building stone of the complex structure of the nervous tissue, without which it cannot be repaired.[11] When a deficiency in this vitamin exists, the nervous tissue becomes first exhausted and then degenerated until finally the symptoms of polyneuritis appear in fowls or dry beriberi in man. This theory is based on experimental observations. Thus Vedder and Clark[20] found that the mitochondria in the nerves of fowls showed definite

12. Fraser and Stanton: The Etiology of Beriberi, Studies from the Institute for Medical Research, Federated Malay States, 1911, No. 12.

13. Chamberlain and Vedder: Contributions to the Etiology of Beriberi, Philippine Jour. Sc., 1911, vi, 251, 395; The Cure of Infantile Beriberi by the Administration to the Infant of an Extract of Rice Polishings, Bull. Manila Med. Soc., 1912, iv, 26.

14. Funk: On the Chemical Nature of the Substance Which Cures Polyneuritis in Birds, etc., Jour. Physiol., 1911, xliii, 26; ibid., 1912, xlv, 75, etc.

15. Vedder and Williams: Concerning the Beriberi Preventing Substances or Vitamins Contained in Rice Polishings, Philippine Jour. Sc., 1913, viii, 175.

16. Edie, Evans, Moore, Simpson and Webster: The Anti-Neuritic Bases of Vegetable Origin with a Method of Isolating Torulin, Biochem. Jour., 1911-1912, vi, 235.

17. Suzuki, Shimamura and Odake: Ueber Oryzanin, etc., Biochem. Ztschr., 1912, xliii, 89.

18. Drummond and Funk: The Chemical Investigation of the Phospho-Tungstate Precipitate from Rice Polishings, Biochem. Jour., 1914, viii, 598.

19. Williams, R. R.: On the Chemical Nature of the Vitamins, read before the Second Pan-American Scientific Congress, January, 1916, and not yet published.

20. Vedder and Clark: Polyneuritis Gallinarum, A Fifth Contribution to the Etiology of Beriberi, Philippine Jour. Sc., 1912, vii, 423.

changes after only seven days on a diet of polished rice, and long before the fowls showed any clinical symptoms of polyneuritis, and these changes were progressive the longer the deficiency lasted until evident degeneration could be demonstrated. Chromatolysis and changes in the tigroid substance of the cells of the cord, similar to that observed in pigeons which have been exhausted by long flights, may also be demonstrated in birds which have developed polyneuritis.

More recently Funk[21] and Braddon and Cooper[22] have published experimental work indicating that the antineuritic vitamin is concerned in some way in carbohydrate metabolism. This conclusion is based chiefly on the fact, which they claim to have demonstrated, that the rapidity of the onset of polyneuritis depends on the amount of carbohydrate eaten. In other words, if a definite but deficient amount of antineuritic vitamin is furnished, the fowls receiving 100 gm. of rice daily will develop the disease sooner than the fowls receiving 50 gm. of rice daily. I believe this observation to be erroneous. I shall not go into this subject in detail here, as I hope to publish the results of my experiments at another time. It is sufficient now to state that fowls will develop polyneuritis on diets containing absolutely no carbohydrate, such as exclusive diets of sterilized egg, or sterilized meat. In the light of this fact it is difficult to understand how the vitamin can be concerned in carbohydrate metabolism. The antineuritic vitamin is the only one of the accessory food substances concerning which there is sufficient evidence to even theorize concerning its action in the body, and it is certain that much more experimental work must be performed before we shall have any adequate conception as to the physiologic action of the vitamins.

The study of beriberi, scurvy and other deficiencies has led us to a working hypothesis that there are a number of different accessory food substances or vitamins and that each deficiency disease is caused by the absence of its particular vitamin. The question may naturally be asked, Why assume the existence of so many vitamins in our present state of ignorance concerning the chemistry of these bodies? May it not be a single substance acting differently under different circumstances and in different animals? I have elsewhere[11] stated the reasons which lead me to believe that dry beriberi and wet beriberi in man are caused by the deficiency of two distinct though possibly chemically related vitamins. With regard to scurvy it may be pointed out that men or monkeys fed on rice will develop beriberi, but if fed on bread will develop scurvy. It seems reasonable to suppose that there must be two vitamins concerned, the deficiency of one producing scurvy and deficiency of the other producing beriberi, and that the scurvy preventing vitamin is present in rice. Further, Funk and McCallum[23] and others have shown that diets which produce neither beriberi nor scurvy in rats may still be deficient in accessory food substances so that young rats are unable to grow on them. Indeed, McCollum and Davis[24] have shown that this failure to grow is due to the deficiency of two substances, one water soluble and one soluble in butter fat, both of which must be present before growth can proceed. From all of these facts and many others, it seems that we must assume that there is a whole group of accessory food substances or vitamins, and that further investigation will be necessary to determine the relation of these various substances to each other.

Much criticism has been expended on the term "vitamin." Most of this criticism is from chemists who point out that the termination "amin" indicates a definite chemical structure and that since the chemical structure of these accessory food substances is not definitely known, the term is probably a misnomer. To me this appears a splitting of hairs. Perhaps the term is not chemically exact, but neither is the use of the word "vaccine" etymologically correct. Most vaccines have nothing to do with a cow. The term "vitamin" is simply a convenient expression to use in place of the elaborate phrase "accessory food substance," and it will probably continue to be used because of its convenience. Vitamins are certainly necessary to life, and to that extent the term is etymologically correct and expresses a fact in one word which is lacking in the phrase "accessory food substance."

Finally, I wish to discuss briefly the application of some of the information obtained with regard to beriberi and scurvy, to other possible deficiency diseases. The deficiency in the dietary that causes beriberi is not by any means limited to rice, for it has been shown repeatedly that too exclusive diets of ordinary white flour, canned goods that have been sterilized, and most carbohydrate foods such as sugars and starches, tapioca, sago, hominy and certain kinds of cornmeal will produce polyneuritis in fowls and beriberi in man. Beriberi has been reported repeatedly in communities, asylums, prison camps, etc., where the diet has consisted largely of such foods. For this reason we may expect to find the disease more often than is generally supposed in the United States. I have already pointed out[25] the instances reported by Bondurant, Bradfield, Sams and Parker, and Wood[26] has recently reported the presence of beriberi in Carolina. It may be of interest to note that Jürgens[27] has recently reported what is probably wet beriberi in the prison camps of Europe, but describes it as the edema disease.

Rice, so far as known, has not been shown to produce scurvy in man or animals, but with this exception practically all of the articles named above have been definitely associated with outbreaks of scurvy. Salted meats are also notorious scurvy producers. Thus a diet of hard bread and bacon has often produced scurvy among soldiers when fresh vegetables and fruits were inaccessible, and similar diets produced scurvy with great regularity among sailors on long voyages before the compulsory use of lime juice.

It is noteworthy that where pellagra is prevalent in the United States, the sufferers from that disease are living very largely on articles that have been demonstrated to produce either beriberi or scurvy or both, namely, flour, cornmeal, canned goods, salt meat, etc. It is quite possible that these people have been protected from scurvy and beriberi because they have eaten a sufficient quantity of other foods that protected

21. Funk: Die Rolle der Vitamine beim Kohlenhydrat-Stoffwechsel, Ztschr. f. physiol. Chem., 1914, lxxxix, 378.
22. Braddon and Cooper: The Influence of Metabolic Factors in Beriberi, Jour. Hyg., 1914, xiv, 331; Brit. Med. Jour., 1914, i, 1348.
23. Funk and McCallum: Studies on Growth, Jour. Biol. Chem., 1915, xxiii, 413, etc.
24. McCollum and Davis: The Nature of the Dietary Deficiencies of Rice, Jour. Biol. Chem., 1915, xxiii, 181.
25. Vedder, E. B.: Some Further Remarks on Beriberi, Am. Jour. Trop. Dis. and Prev. Med., 1914, i, 826.
26. Wood, E. J.: The Question of the Existence of Beriberi in the United States, read before Association of American Physicians, May 9, 1916.
27. Jürgens: Edema Disease Among Prisoners of War, Berl. klin. Wchnschr., Feb. 28, 1916; abstr., The Journal A. M. A., April 15, 1916, p. 1278.

them against those diseases, such as fruit and beans, but left them susceptible to a third deficiency that produced pellagra. Dietary deficiency as a cause of pellagra has been dismissed summarily many times, simply because the investigator was ignorant of or misinformed with regard to the facts that the study of beriberi has developed.

For instance, it is obviously absurd to assume that pellagra must be an infection or an intoxication because of its peculiar pathology. The degenerations in the nervous system in pellagra resemble certain known intoxications, but so does the degeneration of the nervous system in beriberi. Indeed, because of this fact, beriberi was for many years supposed by some to be an intoxication. It is hard to believe that the profound changes seen in the bones in scurvy can be due to the deficiency of any substance found in fruit juices, yet it has been proved that this is the case.

Again, if pellagra is a deficiency disease, as I believe it is, it has an extremely long depletion period. If Goldberger and his associates produced pellagra in their human feeding experiment, the depletion period on the diets used may be placed at at least five months. This long period that must elapse between the adoption of a deficient diet and the appearance of pellagra may easily mislead us in the interpretation of epidemiologic data, and it makes it very difficult to find a suitable experimental animal in which pellagra may be produced, for the simple reason that many animals, fed on presumably pellagra producing diets, will die of some other deficiency disease. I have myself fed four monkeys on diets similar to those observed among pellagrins, but these monkeys all died of scurvy.

The errors and pitfalls into which an observer may fall in trying to elucidate a deficiency disease are many, but for the future I think it will not be disputed that the investigator of pellagra should be fully informed with regard to the literature on other deficiency diseases.

CONCLUSIONS

As there are many conditions under which it is difficult for certain people and institutions to procure a rich and varied diet, I should like to repeat and emphasize the simple dietary rules which I have elsewhere formulated[25] for the prevention of deficiency diseases:

1. In any institution where bread is the staple article of diet, it should be made from whole wheat flour.
2. When rice is used in any quantity, the brown undermilled, or so-called hygienic rice, should be furnished.
3. Beans, peas or other legumes, known to prevent beriberi, should be served at least once a week. Canned beans or peas should not be used.
4. Some fresh vegetable or fruit should be issued at least once a week and preferably at least twice a week.
5. Barley, a known preventive of beriberi, should be used in all soups.
6. If cornmeal is the staple of diet, it should be yellow meal or water-ground meal, that is, made from the whole grain.
7. White potatoes and fresh meat, known preventives of beriberi and scurvy, should be served at least once a week, and preferably once daily.
8. The too exclusive use of canned goods must be carefully avoided.

I am sure that the strict application of these rules will eradicate scurvy and beriberi, and believe that they would be equally efficacious in eradicating pellagra from the United States.

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SYPHILIS WITH NEUROLOGIC SYMPTOMS SIMULATING OTHER CONDITIONS

SOME CASES AND THEIR TREATMENT *

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Since the introduction of the Wassermann reaction as a diagnostic test of syphilis, we have come to recognize more and more the protean manifestations of this disease and to realize that types of disease which before the introduction of the Wassermann reaction were regarded as being due to other causes may be caused by syphilis. At least, we failed to recognize the relationship of various types of disease to syphilis on account of the failure to obtain any very definite history of syphilitic infection or of symptoms in the past suggesting syphilis. The etiologic relationship to syphilis of these cases would pass unnoticed but for the positive Wassermann reaction. Such cases emphasize strongly the importance of carrying out in a routine way Wassermann reactions in practically all cases as is done on the medical service and on the neurologic division of the surgical service of the Peter Bent Brigham Hospital.

With the recognition of the incidence of syphilis and of the probability that syphilis may be the cause of the symptoms in a given case, the inauguration of antisyphilitic treatment is often followed by excellent results. There are, however, cases with neurologic symptoms and with a positive Wassermann reaction in which it cannot be said whether or not syphilis is the cause of the symptoms, inasmuch as these cases do not respond favorably to antisyphilitic treatment. In such cases it may be that there is a chronic cerebrospinal lesion of nonsyphilitic nature and coincident syphilis, or it may be that we are dealing with a case in which syphilis has produced permanent chronic changes from which recovery is impossible following antisyphilitic treatment. The following cases illustrate the association of syphilis as a probable cause of various neurologic symptoms, inasmuch as there was a positive Wassermann reaction, and an amelioration of symptoms occurred following antisyphilitic treatment.

CASE 1 (Peter Bent Brigham Hospital Medical No. 1533).—A woman, aged 29, entered the hospital, Aug. 5, 1914, complaining of trigeminal neuralgia. A diagnosis of trigeminal neuralgia was made. There was no history suggestive of syphilitic infection or of antecedent syphilitic disease. Four years previous she had had a sudden onset at night of pain back of the angle of the left jaw; this was repeated on three successive nights. Following this there developed a typical picture of trigeminal neuralgia. Later there was a paralysis of the left side of the face, and subsequently the right side of the face became involved with attacks of sharp, cutting pain.

Physical examination was negative except for a moderate ptosis of the left eyelid and a greater fulness of the left side of the face and limitation of all voluntary movements of the right side of the face. The blood serum gave a strongly positive Wassermann reaction. The spinal fluid showed a slightly increased globulin, a cell count of 27, and a negative Wassermann reaction. She was treated with fourteen intravenous injections of salvarsan, a total of 4.1 gm. in four months. This was followed by intramuscular mercury for three months. Following the first four treatments with salvarsan there was steady improvement. Gradually the pain and tenderness along the right side of the face disappeared

* From the Medical Clinic of the Peter Bent Brigham Hospital.

and the attacks of pain on the left side became less frequent, less severe and shorter in duration. After twelve treatments she was entirely free from pain and she has continued so for a year. The Wassermann reaction in the blood serum became negative and is negative at the present time.

CASE 2 (Peter Bent Brigham Hospital Medical No. 851).—A woman, aged 46, entered the hospital, Jan. 27, 1914, and a diagnosis of trigeminal neuralgia was made. There was no history of venereal disease and no evidence of antecedent syphilitic infection. Three years previous she began to have attacks of pain and a feeling of pressure through both temples and eyes, but this was worse on the right side. Six months before entrance she developed pain and soreness in the right arm and right side; this lasted for one week. During the last ten days she had had paroxysms of excruciating pain in the right upper jaw, and more recently in the right lower jaw. This pain was knifelike and jumping in character.

Physical examination, except for the pain, tenderness and swelling in her gums, was negative. The blood serum gave a strongly positive Wassermann reaction. The spinal fluid gave a negative globulin test, a negative cell count and a negative Wassermann reaction. Following twelve intravenous injections of salvarsan, a total of 4.1 gm., there was entire relief of all symptoms. Three months later there was a slight return of pain, but three more doses of salvarsan relieved this, and the blood serum Wassermann reaction became negative. The patient has remained entirely free from all symptoms for six months.

CASE 3 (Peter Bent Brigham Hospital Medical No. 1259).—A man, aged 43, entered the hospital, May 18, 1914, complaining of attacks of unconsciousness. A diagnosis of idiopathic epilepsy was made. Four months previous he had had a typical epileptic convulsion lasting for twenty minutes. Three months previous he had noticed attacks of numbness in his left hand, arm and face; the numbness usually started in his thumb and gradually involved his left hand, arm, shoulder and left face. These attacks lasted only a few moments. During the past two months he had had frontal headaches coming on usually in the early morning and lasting for an hour.

Physical examination was negative except for slight inequality of the pupils. The blood serum gave a positive Wassermann reaction. The spinal fluid showed 16 cells per cubic millimeter and a questionably positive globulin test and a positive Wassermann reaction with 0.5 c.c. He was given three intravenous injections of salvarsan, a total of 1.5 gm., and also inunctions of mercury. Two years have elapsed since treatment was stopped, and there has been no return of symptoms.

This case is cited as an example, although not typical, in order to call attention again to the fact that syphilis probably accounts for a certain number of cases of epilepsy. We have had nine typical cases of epilepsy, all of which were in young adults. Three were treated with salvarsan alone, and the remaining ones with mercury intramuscularly. In all of these cases the attacks were greatly diminished in frequency, and in some the attacks stopped. In one case the epileptic attacks were diminished from eighteen a year to four; in another case a year and in still another more than a year has elapsed without an attack. That epilepsy may in some cases be due to syphilis is further evidenced by the fact that some patients with congenital syphilis have epilepsy from birth. We have seen three such cases. The spinal fluid in the cases of epilepsy gave a negative Wassermann reaction, but in the congenital cases it was positive.

CASE 4 (Peter Bent Brigham Hospital Medical No. 2825).—A boy, aged 3 years and 6 months, entered the hospital complaining of headache and vomiting. A diagnosis of epidemic cerebrospinal meningitis had been made, and treatment with antimeningococcus serum had been given previous to admission to the hospital. There was no history of syphilitic infection and there were no symptoms suggestive of syphilis in either of the parents or in the child. Both parents gave a negative blood serum Wassermann reaction. The child had had no previous illness, except scurvy at the age of 1 year. During the six months previous to admission to the hospital, the child had had some discomfort about the right ear. For two months previous he had had headaches of varying intensity with occasional vomiting. One month previous he had had some retraction of the head of three days' duration. One week previous he had had an increase in severity of all these symptoms. Four days previous the symptoms had presented a picture of meningitis, and antimeningococcus serum was given intraspinally. Following this, two lumbar punctures had been performed; but at no time were any organisms found in the spinal fluid. On admission to the hospital, the child showed evidences of an acute meningitis. His temperature was 103 F. and his pulse was 180 per minute. There was retraction of the neck and a double Kernig's sign. There was slight photophobia, and the pupils were moderately dilated. He moaned continuously and screamed with pain whenever an attempt was made to move him. The white blood count was 29,000 per cubic millimeter. A differential count showed 70 per cent. polymorphonuclears, 18 per cent. small mononuclears and 12 per cent. large mononuclears. The Wassermann reaction in the blood serum was strongly positive. The spinal fluid was purulent and contained 9,800 white cells per cubic millimeter; the differential count showed 62 per cent. lymphocytes, 26 per cent. polymorphonuclears and 12 per cent. endothelial cells. The Wassermann reaction in the spinal fluid was positive with 0.1 c.c.

The child was under observation for eleven days without treatment and without any change in his condition except for temporary relief following lumbar puncture. Treatment was then begun with intraspinal injections of salvarsanized serum at frequent intervals, and an occasional dose of salvarsan was given intravenously. The child improved rapidly and returned to normal except for partial deafness. In four months the Wassermann reaction in the blood serum became negative, and in the spinal fluid it became negative with 2 c.c. The spinal fluid showed a cell count of 5 per cubic millimeter and a negative globulin test. One year has elapsed since treatment was begun, and the patient continues free from symptoms.

We have observed and treated two other very similar cases in young adults, but in them the diagnosis was evident. In the foregoing case, however, the correct diagnosis was not suspected, and we consider it of unusual interest.

As mentioned at the outset, we have had other cases which showed positive Wassermann reactions in the blood serum and in the spinal fluid and which presented syndromes strikingly like well defined neurologic conditions. Although syphilis was probably the etiologic factor, it could not be proved because the destructive process had progressed too far for antisyphilitic treatment to be of any but questionable benefit. These cases resembled conditions among which may be mentioned amyotrophic lateral sclerosis, spastic paraplegia, multiple sclerosis and pseudotumor cerebri and cerebelli. In the cases detailed, we consider syphilis to be the cause in each case both because of the positive Wassermann reactions and because of the improvement following antisyphilitic treatment.

Philosophy.—The philosophers rule the world, and they have always ruled it since philosophy began. The man of action may not know what those ruling ideas and purposes are. Nevertheless they are there and they are ruling. They may be the product of a good philosophy, or they may be the product of a bad philosophy; but of some philosophy they are certainly the product. Ideas direct conduct.—Nicholas Murray Butler.

THE ETIOLOGIC RÔLE OF SCAR TISSUE IN SKIN CANCER *

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French authors have described under the term "carcinoma épithéliale cicatrisans," a form of epithelioma that takes its origin from preexisting scar tissue. Epithelioma with derivation from scar tissue is not an infrequent clinical occurrence and the literature of all countries is replete with examples of that character.

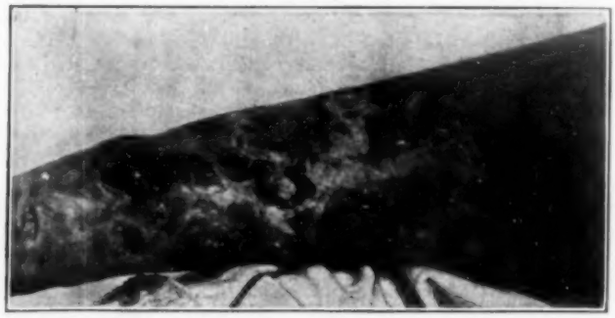

Fig. 1 (Case 1).—Carcinoma épithéliale cicatrisans following extensive burn of the leg.

It has come within my province, and the experience is doubtless common to many dermatologists, clinically to observe and histologically to examine a number of these cases. My investigations have led me to believe that they possibly shed some light on the still unsolved and more or less obscure cancer problem.

Strictly interpreted, carcinoma épithéliale cicatrisans embraces those forms of epithelioma or skin cancer which spring essentially from old healed-out scar tissue, clinically dissociated from the process (burn, injury, syphilis, tuberculosis, etc.) which originally produced it. The cicatrization must represent a past process, no longer in a state of active formation. Skin cancer, which frequently implants itself on chronic cicatrizing dermatoses, such as lupus, tertiary syphilis and lupus erythematosus, cannot be included under this special group, unless it can be conclusively demonstrated that the cicatrizing agent had completely and definitely disappeared before malignancy became established.

If cutaneous malignancy, which occasionally implants itself on the various cicatrizing forms of chronic dermatosis, be definitely excluded, carcinoma épithéliale cicatrisans becomes a well defined and easily recognized clinical entity. It would embrace the chronic resistant, indolent ulcerations which slowly enlarge in circumference and increase in depth, presenting glistening indurated everted edges, which spring from long standing and extensively cicatrized areas. It differs but little from superficial epithelioma situated elsewhere, except for its cicatricial surroundings and its somewhat ill-defined and less clinically clean cut character. In its earlier forms it is easily mistaken for ordinary abrasions and simple ulcerations. The histologic findings are always characteristic and easily complete the picture in doubtful cases. The lesions are often multiple, particularly in cases in which the cicatrization is very extensive. Nature, for a goodly period of time, makes a strong effort to inhibit the process. Ulcerations and repair go hand in hand; ulceration, however, if unchecked by successful measures, eventually gains the ascendancy, and all the secondary changes incident to cutaneous malignancy in severe and grave form gradually assert themselves.

Carcinoma épithéliale cicatrisans develops in its most exemplified form from the thoroughly healed out cicatrices of old extensive burns. The writer begs to report two cases of such character, situated on the lower extremities, an area that is markedly immune to all forms of cancerous degeneration of the skin. Gottheil[1] has called particular attention to the fact that malignant degeneration of the skin is exceedingly rare over the lower extremities, compared with that of the face or other more favored areas. He has been able to enumerate only ten well defined cases, in addition to two of his own, in the literature. Epithelioma of the lower extremities doubtless occurs much more commonly than one would be led to believe by the relatively infrequent reports. It is also probable that systematic biopsy of many chronic indolent leg ulcerations would disclose many additional cases. Nevertheless, when we consider that leg ulcers are exceedingly commonplace, that they usually persist for many years, in neglected form, and they are constantly subjected to all kinds of insult and injury and receive, at best, very poor, careless and indifferent attention, their apparent immunity to malignant change appears incongruous. A similar lesion situated over a more favored area, the face, for example, will degenerate into well defined malignancy with commensurate less insult, injury and neglect, and within a small fraction of the elapsed time. This, however, is far from true with indolent ulcerations over the lower extremities, when

Fig. 2 (Case 2).—Carcinoma épithéliale cicatrisans following extensive burn of the leg.

they are established on deep, extensive scar tissue. In my experience the latter type are exceedingly refractory, and though they may persist for a considerable period of time and show some tendency to undergo spontaneous repair, they ultimately take on an intense malignant character. It has also been my experience, and is doubtless not an uncommon one, that cutaneous malignancy, regardless of its location, whether on leg,

* Read before the Section on Dermatology at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

1. Gottheil, W. S.: Cancerous Degeneration in Leg Ulcer, THE JOURNAL A. M. A., July 6, 1912, p. 14.

face, or elsewhere, when implanted on cicatrized or even a partially cicatrized basis, lupus, lupus erythematosus, leukoplakia, Roentgen-ray atrophies, etc., is relatively much more severe in clinical character than on epidermis more normal in nature. These are a few of the clinical variations for which the still obscure cancer problem should in the future find some form of satisfactory explanation.

Fig. 3.—Epithelioma emanating from a smallpox cicatrix, when the patient was about 14 years of age.

CASE 1.—J. W., aged 60 years, an intermittent inmate of the Cincinnati General Hospital for six years, was readmitted to the Cincinnati General Hospital Feb. 8, 1911, and died Jan. 4, 1913, from an intercurrent lobar pneumonia. Necropsy was refused. He was physically well developed, 5 feet 8 inches in height, weighed 168 pounds, and was in good general health on the date of his last admission to the hospital. He denied past venereal infection and was serologically negative. The heart, liver, lungs and kidneys were normal. The patient stated that when engaged in trundling a wheelbarrow on a plank over a vat of boiling brine, while employed in a saltworks in Michigan in 1888, he slipped and fell into the boiling liquid and sustained a severe third degree burn of the left leg, from the ankle to the middle third of the thigh. The foot was partially protected by a close-fitting shoe. The resulting burn seriously threatened his life and maintained him bedfast for one year. Convalescence was not fully established until two years had elapsed.

On examination, the entire left leg from the middle third of the thigh was the site of a somewhat smooth, glistening white cicatrix, without a vestige of intervening normal skin. The cicatrix was firm, hard, resistant, closely bound down to the underlying tissues, and entirely devoid of the normal folds and furrows, hair and follicles. The underlying musculature was markedly atrophic and the knee ankylosed. The left leg from the middle third of the thigh to the left foot was markedly reduced in size, compared with the right. The cicatrix was abundantly traversed with cicatricial bands; the contractures held the knee fixed in partially flexed position. The leg, with the exception of minor abrasions and superficial excoriations, remained healed a considerable number of years. For the past ten or twelve years it became the seat of multiple, painful ulcerations, which have steadily increased in size, multiplied in number, and for the past six years have incapacitated the patient for active service and enforced an intermittent hospital residence. On the date of the last admission to the Cincinnati General Hospital the left leg from the thigh to the ankle was the site of twenty or more irregularly disseminated indolent ulcerations (Fig. 1). Many of the ulcerations were small and shallow and apparently of simple character. A number, however, were rather large, with firm, glistening everted edges, extensively infiltrated and painful to touch and pressure. Secretion was relatively moderate and the tendency to crust formation was marked, unless carefully protected. The inguinal glands were enlarged and moderately painful, but only commensurate in degree with the associated lymphatic infection. During the patient's six years' residence at the hospital a number of these ulcerations were extirpated for surgical effect and secondarily submitted to microscopic examination. Areas were removed from others for biopsy. The microscopic result was uniformly a spinous-cell epithelioma. Various therapeutic measures, Roentgen ray, arsenical paste, carbon dioxid snow, in addition to occasional surgical extirpation, were employed, but for the most part with negative results. The lesions, once established, usually persisted, increased in size and multiplied in number. The patient's general condition gradually became more impaired and weakened and, save for the intercurrent pneumonia, the ultimate result could not have been interpreted other than definitely unfavorable.

CASE 2.—Mrs. F. B., aged 48, native of Germany, incurred severe and extensive burns over the lower extremities when 2 years of age, from blazing skirts, which caught fire from an open hearth. The severest and most extensive burns were situated on the right leg; convalescence was slow and tedious, covering a period of almost two years, patient being bedridden a large portion of the interim. An indolent ulceration manifested itself when the patient was 10 years of age and was unsuccessfully extirpated in the Memel City Hospital, Germany, when the patient was 12 years of age.

The patient first came to the writer's notice in 1906. Two large indolent, painful ulcerations were situated over the outer aspect of the right leg, below the knee, in close proximity to each other. They were well in the center of the field of greatest cicatrization. The ulcers were diffusely infiltrated, borders glistening and everted, and with base and edges somewhat crust covered. In addition to the ulcerations and a few smaller excoriations, the upper two thirds of the right leg and the lower third of the right thigh in almost their complete circumference were the seat of extensive cicatrization. The limb over this area was greatly shrunken and normal folds and furrows, hair and follicles, were completely obliterated. The overlying epidermis was glistening white, and richly traversed by numerous cicatricial bands and cords which limited somewhat the free movement of the knee.

Fig. 4.—Spinous-cell epithelioma emanating from a cicatrized center of a long standing patch of lupus vulgaris.

In 1911 the patient was removed to the Cincinnati Jewish Hospital and the larger, more painful ulcer was freely extirpated. The biopsy showed a deeply infiltrating, actively proliferating spinous-cell epithelioma. After a somewhat retarded convalescence the extirpated area healed without recurrence. The upper lesion, however, took on renewed activity, and on Dec. 8, 1914 (Fig. 2), it covered a relatively large area and was typically epitheliomatous in appearance. Shortly after, the patient passed from personal observation.

GENERAL CONSIDERATIONS

The chief interest in the report of these cases is the clinical fact that cancer is prone to implant itself on scar tissue; that cicatricial tissue, as compared with normal, is particularly predisposed to this transitional change. This predisposition on the part of scar tissue is strongly evidenced by the fact that the transitional change readily takes place over areas that are strongly disposed against malignant change when scar tissue is not richly in evidence. Epithelioma having scar tissue

for its etiologic basis represents a distinct clinical group. Not that it differs essentially in nature and clinical appearance from skin cancer induced by other causative factors and situated on epidermis more normal in character, but because it permits a more intelligent and systematic classification of clinical types in respect to that which is most fundamental, etiology. There are histologic and possibly therapeutic reasons for a separate grouping of this character.

Such a grouping would serve to call to our particular attention that scar tissue, even though well healed out and of long standing, is not without its dangers. It is unquestionably below par and vulnerable to malignant change. The scar resulting from gastric ulcer attests amply. We are not, however, to assume that every scar, rather than every pigmented mole or senile keratosis, is a grave menace. A comparatively small scar is probably at most an insignificant menace, whereas a very large, extensive cicatrix is without doubt a graver menace; but cicatrices, regardless of their size, character and distribution, are not without some significance. This is particularly true if we include in the group of carcinoma épithéliale cicatrisans all forms of skin cancer which not only spring from scars resulting from burns and injuries, but from cicatrizing dermatoses, such as lupus, syphilis, lupus erythematosus, Roentgen-ray, and leukoplakia, whose predisposing influence can probably be attributed more to the resulting cicatrix than the affection which produced the cicatrization.

Fig. 5.—Spinous-cell epithelioma of the tongue emanating from old cicatrized areas following long standing syphilis.

HISTOLOGIC CONSIDERATIONS

The histology of carcinoma épithéliale cicatrisans is not without some special interest. I have extirpated and examined histologically a number of ulcerations taken from the reported cases. The histopathology was invariably a spinous-cell epithelioma. Squamous or spinous-cell epithelioma has also been the uniform histologic picture of epitheliomas implanted on some of the cicatrizing forms of dermatoses, namely lupus, lupus erythematosus, leukoplakia oris, and Roentgen-ray atrophies. This histologic result, though of some interest in the latter affections, possesses much more significance and importance in carcinoma épithéliale cicatrisans. In the latter instance the skin cancer is derived from and implanted on an area which has been extensively and severely burned. Hair, follicles and all specialized structures have been destroyed and removed. The only epithelial structure extant is the epidermis, and the resulting growth from this structure seems invariably to be a spinous-cell epithelioma. Cancer of the skin, generally speaking, can be divided into two large groups, which preserve for themselves certain clinical and histologic features. They are the spinous and basal cell forms. Clinically, the spinous-cell type grow more rapidly, metastasize more freely, recur more promptly after removal, and respond less readily to therapeutic measures. Briefly stated, they show relatively more malignant character. The basal-cell type, as a rule, develop slowly, persist in simple, unchanged form for years, rarely metastasize and are extremely slow in manifesting ulcerative and destructive changes and glandular involvement, and respond promptly and readily to therapeutic measures. They embrace, for the most part, the rodent ulcer type and spring usually from small excrescences or senile keratoses. The spinous-cell type generally spring, as already intimated, from cicatrizing processes. It is also the predominating type in cancer of the mouth, tongue, and lips, and inasmuch as small abrasions over these areas are not uncommon, fissures from cold, lacerations from the teeth, together with the secondary changes incident to lupus, syphilis, etc., cicatricial tissue can well be the predisposing factor.

Basal-cell epitheliomas consist uniformly of small, somewhat elongated cells, with large deeply staining, oval nuclei, indiscernible cell wall, with scanty nongranular protoplasm. They usually preserve a somewhat adenomatous arrangement, conforming somewhat to the general structure of hair follicles or sweat glands and their orifices, from which they probably take their remote origin. I take exception to currently entertained opinion that they often, as implied by their name, take their remote origin from the basal cells of the epidermis. They are usually well walled off by a zone of inflammatory reaction; nest formation and cornification are not in evidence. They frequently undergo cystic and colloid degenerative changes.

Spinous or so-called prickle or squamous cell epitheliomas consist of large, rounded cells with small oval nuclei; they show a more rapid cell proliferation, more active mitotic changes, extend downward more rapidly and form epithelial pegs more abundantly. The cells, except in the squamous epitheliomas of mucous membranes, retain their prickles for a given period, but they are soon lost in the secondary keratinization and degeneration. Nest formation is usually constant.

Scientific opinion is still very much at variance in regard to the origin and histologic character of the various conceded clinical and pathologic types of skin cancer. Opinion appears fairly uniform in regard to spinous or the so-called squamous and keratinizing forms of skin cancer. It is almost universally conceded that it derives its origin from the epidermis. Some maintain, however, that it is derived solely from the spinous or squamous layers. Others grant, in addition, that they may readily revert to a basal-cell type. The writer sincerely believes that this clinical and histologic form of epithelioma springs from the epidermis, irrespective of its specialized layer, basal, spinous, or squamous; that it conserves its special type in conformity with the general rules of tissue in malignancy, irrespective of stage, location or environment. If basal cells of the epidermis can produce basal-cell epitheliomas, then a certain proportion of carcinomata épithéliale cicatrisans should belong to that type. This has not thus far conformed to my experience. Moreover, experience indicates that the predominating form of

skin cancer implanted on the cicatrizing dermatoses belongs essentially to the spinous type; however, this latter class is not so conclusive, inasmuch as glandular elements and specialized structures of the skin are often conserved and usually somewhat in evidence in many of the chronic forms of cicatrizing dermatoses.

Furthermore, I am firmly of the opinion that the basal-cell epitheliomas of Krompecher spring essentially from hair follicles (trico-epithelioma) sweat glands and follicles (cylindroma), and other specialized structures of the skin; but not from the basal cells of the epidermis. This form of epithelioma may encroach on the epidermis and stimulate it by its abnormal presence to overgrowth and more active proliferation, as in chronic ulcerations and other inflammatory processes, but a distinct clinical and histologic borderline between these two well-established forms of cutaneous malignancy is definitely preserved in all cases.

CONCLUSIONS

1. Carcinoma épithéliale cicatrisans, or cicatrix epithelioma, is a well defined clinical group of skin cancer.

2. Carcinoma épithéliale cicatrisans embraces a group of skin cancer scarcely second in clinical importance and histologic and scientific interest to rodent ulcer, nodular and papillomatous epitheliomas.

3. Scar tissue is essentially below par in general resistance and predisposes to secondary cancerous degenerative changes.

4. Chronic cicatrizing dermatoses (lupus, lupus erythematosus, syphilis, leukoplakia, etc.), as well as deep extensive scars and atrophies from new growth, trauma, and Roentgen-ray, doubtless favor cancerous changes.

5. The predominating histologic type of skin cancer on scar tissue is a spinous-cell epithelioma.

6. Epithelioma derived from scar tissue must trace its origin from the epidermis.

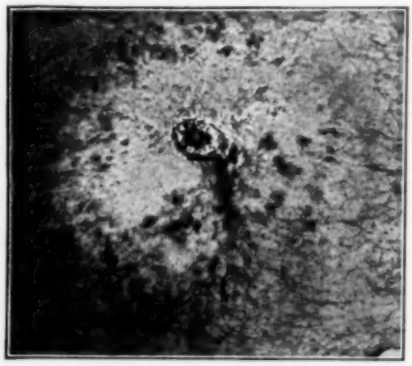

Fig. 6.—Epithelioma of the umbilicus emanating from an extensive atrophic scar following severe Roentgen-ray burn.

7. Spinous-cell epithelioma is derived from the epidermis and any of its layers.

8. Basal-cell epithelioma is derived from the sweat glands or sebaceous glands and their ducts, from the hair follicles, and from the specialized structures of the skin. It is not derived from the epidermis or its basal layer of cells.

Annual Loss from Sickness.—There were in the United States, according to the census of 1910, 33,500,000 people who were engaged in remunerative work. Making an estimate from all available statistics, including those kept in Germany, it appears that there are probably, among the working people of the United States, 13,400,000 cases of sickness annually, entailing a total loss of time of 284,750,000 days. The losses in wages placing the average at the low figure of $2 a day, and omitting Sundays, would be $488,142,852. These enormous totals show what immense economic disturbance and financial waste from loss of time alone is inflicted by sickness. This necessarily causes an incalculable amount of destitution and misery from lack of necessaries of life, aside from the terrible direct physical suffering from disease. In addition to all this, sickness compels the expenditure of immense sums for physicians, medicines and hospital bills.—Welfare Insurance, Rufus M. Potts.

THE TREATMENT OF MALIGNANT DISEASE ABOUT THE MOUTH BY COMBINED METHODS *

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I should like to refer to the recent review of 556 articles on tumors of the mouth by Blair,[1] and then confine my remarks to treatment.

As prophylactic measures, we, as physicians, should give close attention to the mouths of our patients. Their jagged teeth should be removed or treated. Pyorrhea ulcers should receive proper treatment. Leukoplakia demands cessation of smoking and the elimination of syphilis, and if the lesion then existing does not disappear, or develops fissures or thickening, I believe it should be thoroughly destroyed by electrothermic coagulation. Smoker's stomatitis, of course, demands cessation of smoking. An ulcer which develops in the mouth of a patient who has a positive Wassermann test should show distinct evidence of healing within a few weeks after active antisyphilitic treatment has been given, or should be regarded as highly suspicious of malignant disease, and treated accordingly. The patient should not be allowed to continue for months without improvement on a suspicious diagnosis of syphilis. Ulcers, fissures, crusts or warts that develop on the lower lip or at the angles of the mouth and do not disappear within three weeks should be thoroughly destroyed by electrothermic coagulation, and should receive Roentgen-ray treatment locally and on the glandular area under the jaw. The larger lesions should have a section removed for microscopic study, and then be immediately destroyed by electrothermic coagulation. Bloodgood has well stated that the removal of sections for diagnosis, and then delay in the radical treatment, only aggravates the disease and gives no advantage. I believe that careful attention to these prophylactic measures will accomplish many times more than all of the best methods known today, separate or combined.

METHODS OF TREATMENT

It will undoubtedly be many years before the medical profession and the laity will realize fully the importance of prophylactic measures. We shall have to contend, therefore, with malignant disease in all stages, and I have come to believe that no single method is sufficient for the treatment of this malignant disease. We have at our command at least four different methods for the treatment of malignant disease, especially as applied to the mouth. These are surgical removal, local destruction by means of electrothermic coagulation, deep roentgenotherapy, and the application of radium in the mouth.

* Read before the Section on Dermatology at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

* Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints.

1. Blair: Tumors of the Mouth, Surg., Gynec. and Obst., February, 1916.

Every case of epithelioma about the mouth should have the disease destroyed locally by electrothermic coagulation, or thoroughly excised surgically. I have come to believe that the local destruction in the mouth or about the lips by means of electrothermic coagulation will give better results than excision, and generally with less loss of tissue; but I also would urge when palpable metastatic glands are present in the neck, that they be excised surgically even though the disease inside the mouth or on the lips is destroyed by electrothermic coagulation. Following this destruction or removal, deep roentgenotherapy should be thoroughly applied

Fig. 1.—Epithelioma of the lower lip following a fever blister. (*A*) Began two years before. Had been treated by a plaster unsuccessfully. This was associated with enlarged submental and submaxillary glands. Treated at first for two months by fractional doses of Roentgen rays. It was then excised by Dr. Laplace, and treated the following day by Roentgen rays again. The patient is well today, thirteen years later. (*B*) Well after a year, and still well, 1916.

over the wound, and over the glandular area, making use of as much crossfiring as is possible. I am sure that this will give an improvement in the results over those cases in which surgery alone is depended on.

Surgery.—The surgical removal of malignant disease about the mouth has been so thoroughly reviewed recently by Blair and by Bloodgood that I need only refer to their writings. Their results show that when surgery alone is depended on, thorough local excision and complete dissection of the glands draining the diseased area give the best results.

Electrothermic Coagulation.[2]—As the name implies, there is produced a coagulation of the tissues by means of heat, and the heat is generated by the electricity. It differs, however, from the thermocautery for the removal of the disease, in that the heat is generated in the tissue, and is produced by the resistance offered to the flow of electricity through the tissues, while the thermocautery is merely transmitted heat and necessarily produces a more superficial effect. The effect can be thoroughly controlled by varying the relative sizes of electrodes so that one can make the conductive heat approximate a cone or cylinder. When one of the electrodes is a point, the greatest amount of destruction will develop at the point, and then will radiate in a more or less cone shape toward the opposite electrode, thereby giving a zone in which the tissues are heated to the destructive degree for malignancy, but in which healthy tissues will not be destroyed. We therefore obtain the same advantages that are given by the Percy method.

2. Pfahler, G. E.: Electrothermic Coagulation and Roentgenotherapy in the Treatment of Malignant Disease, Surg., Gynec. and Obst., December, 1914, p. 783.

Technic: The technic of the electrothermic coagulation is similar to that described by Nagelschmidt, and in principle is identical. The d'Arsonval current is generally used, or a combination of the d'Arsonval and Oudin current. An instrument is necessary which will generate from 1,000 to 2,000 milliamperes of current. The amount of current will, of course, vary with the amount of destruction of tissue necessary. The amount of destruction of tissue needed with the depth is a matter of clinical judgment.

The two electrodes are used attached to the two poles. We, of course, know that the d'Arsonval current is alternating in character. The shape and character of the electrode will vary with the character of work required. For instance, if one desires to remove a considerable portion of the lip, I would use on the inside a ball electrode about three-eighths inch in diameter, and on the outside a needle point electrode. Then I would outline the area of the diseased tissue to be removed by allowing the current to flow from this point toward the ball electrode on the inside, and I would then coagulate the entire diseased tissue. At first I depended on the needle electrode actually to carve out the diseased tissue, but now I find it simpler to cut this away with a pair of curved scissors after coagulation, always cutting within the coagulated tissue. In this way there is no bleeding, and the edges are completely sealed off. The blood vessels and lymphatics are at no time opened, which I believe to be a distinct advantage in the prevention of metastasis and in ultimate cure of the patient. In destroying an extensive lesion in the cheek, I use a flat electrode 1 inch in diameter, on the inside, and a point electrode on the outside. In destroying a portion of the tongue, I have used two point electrodes. The electrodes are held in contact with the tissue. In destroying leukoplakia patches or superficial lesions, I commonly attach one

Fig. 2.—Epithelioma of the lower lip (*A*). Duration one year. Removed by electrothermic coagulation, Feb. 17, 1914, and followed by deep roentgenotherapy. (*B*) Thoroughly healed in about two months. Photograph taken July 27, 1914. Patient wearing, attached to his teeth, an artificial lip, to which is attached the beard.

pole to the Oudin current, and the other pole to the d'Arsonval. One must always be as sure as possible always to destroy the entire diseased area, for there is danger of rapid extension from the periphery if all the disease is not destroyed, unless it is possible to control this tendency by the deep roentgenotherapy. The tendency to the increased rate of growth in areas not removed by this process or by operation is probably due to increased congestion which is brought about by the subsequent reaction.

Cases Suitable for Electrothermic Coagulation: 1. Those cases in which the disease can be destroyed completely locally without regard to saving blood vessels or nerves, for in this coagulation process the blood vessels and nerves in the diseased area are destroyed in the same manner as the diseased tissue. It is, therefore, applicable to lip cases, epitheliomas on the inside of the cheek, the tongue, the floor of the mouth, and the alveolar process, but it is not suitable for use on the metastatic glands of the neck. 2. Those cases in which one can combine the local destruction of the disease in the mouth with the surgical removal of the diseased glands in the neck. 3. It is of doubtful utility in sarcomas, and I believe that sarcomas will give better results by deep roentgenotherapy alone than with the combination of these two agencies.

Advantages of Electrothermic Coagulation: 1. The disease is destroyed by conductive heat which gives a zone of devitalization without actual destruction of healthy tissue, thereby saving local tissue when necessary. 2. There are no raw tissues to permit the transplantation of malignant cells. 3. There are no blood or lymphatic vessels opened up through which the disease can be disseminated during the operation. 4. One does not have hemorrhage to contend with, though, in tongue cases, there is some danger of a secondary hemorrhage. 5. There are no open wounds and no danger of local infection.

Disadvantages of Electrothermic Coagulation: 1. There is complete destruction of all the tissue between the two electrodes. Therefore, there is no chance of saving the blood vessels or nerves which are in close proximity to the disease. 2. There is necessarily considerable sloughing and foul odor associated during the first two or three weeks, but there is no danger of infection, and I have never had infection of the tissues develop in any case of electrothermic coagulation in any part of the body. There is considerable reaction during the first few days after the operation. 3. It leaves an open area which is healed by granulation, but at times this healing must be followed by a surgical plastic operation to close the mouth or correct some deformity. It is truly remarkable how a very ugly wound in the early stages will close in and develop rounded edges so as to become very insignificant. I have in mind the lip, cheek and tongue cases.

Deep Roentgenotherapy.—Object: The object of the roentgenotherapy is to control or destroy the outlying cells or metastases that may be missed in the coagulation process. Therefore, the treatment must be thorough and given with the understanding that disease may still be present; for if one is sure of having destroyed all of the malignant disease, there is no object in adding the roentgenotherapy. This treatment must always be given with the technic used for deep disease, for one should never leave any superficial or visible disease behind.[3]

Radium.—I believe that the place of radium in the treatment of malignant disease about the mouth is within the mouth and not on the outside. I can see no advantage of radium over Roentgen rays, and much disadvantage because so much less in quantity, and so less definitely controlled when applied externally. The Roentgen rays can be applied externally with more power and their direction and distribution perfectly controlled, while the quantity used is immensely greater than that obtained from any quantity of radium of which I know today. When the radium is applied inside the mouth, however, all these arguments disappear, for one is able to bring the radium in close contact ofttimes with the disease, and when filtered through at least 0.5 mm. of silver, and when one applies approximately 600 milligram hours of radium, a very decided, and I believe, beneficial effect can be added. I believe, however, that even when the radium is used within the mouth, there should be nothing lost, and much gained by adding the deep roentgenotherapy from as many angles as possible, applied externally. The advantage of radium is that we are adding this inside treatment. In other words, we are applying another crossfiring effect by means of radium. It is this combination which I use, and I believe the most practical.

Fig. 5 (Case 8).—Extensive epithelioma involving the lips and inside of the cheek and the angles of the jaw (*A* and *B*). No glands palpable. Destroyed by electrothermic coagulation, Jan. 20, 1913, and followed by deep roentgenotherapy and radium. (*C*) shows the opening in the mouth nine days after the destruction. This opening closed to within ¾ inch by 1½ inches. January, 1914, (*D*) the mouth was closed by Dr. Laplace. The patient is still well, June, 1916.

CLASSIFICATION AND REPORT OF CASES

Time will not permit a record of all of the cases that we have treated by these combined methods. In doing this combined treatment, I am indebted to the surgeons who have referred the patients and cooperated with me in their treatment. I would mention especially Drs. Laplace, Deaver, Warmuth, Burns and Schwarz.

Epithelioma of the Lip.—Early in our work, we depended on the Roentgen rays alone in the treatment

3. For more details, see the Transactions, reprints, and Roentgen Therapy in the Treatment of Deep-Seated Malignant Disease, The Journal A. M. A., May 1, 1915, p. 1477.

of small epitheliomas, but today we always destroy the lesions on the lip by means of electrothermic coagulation, no matter how early, for one can obtain more definite results, and can get them more quickly by thus combining the local destruction with deep roentgenotherapy applied locally, and in the glandular areas leading therefrom. I have treated many cases of extensive recurrence both locally and in the tissues of the neck. Generally speaking, such cases do not yield to roentgenotherapy or even to combined methods of treatment, and I will dismiss this whole group with this remark. I will refer only to the primary cases which had not been treated actively by other methods preceding our treatment, and which I have treated in my private office, for it seems impossible to keep control of dispensary cases. I have treated in my private practice:

1. Primary Cases Treated by the Roentgen Rays Alone: In this group there are eight cases. Of these eight, seven patients recovered, and have remained well from a few months to eight years. The eighth patient was a locomotive engineer who developed the epithelioma after being struck on the lip by a hot cinder. He recovered, remained well about a year, then was struck again by a hot cinder, developing a recurrence. He was operated on surgically and developed a second recurrence, from which he died.

2. Primary Cases Treated by Electrothermic Coagulation and Roentgen Rays: In this group there are fifteen cases. All of the patients have recovered, and so far as I am able to learn, have remained well to the present date, which is from a few months to seven years.

3. Primary Cases Treated by Surgery and the Roentgen Rays: In this group there are four cases. All the patients have recovered, and have remained well from two to thirteen years.

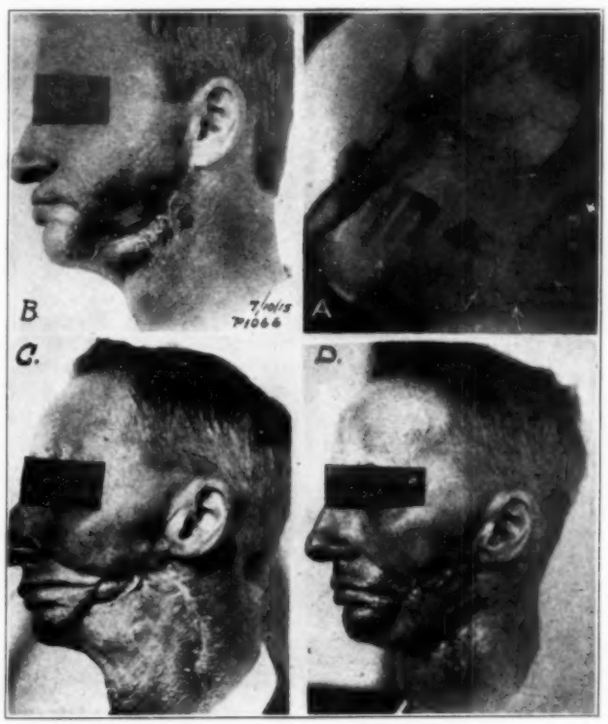

Fig. 6 (Case 7).—Extensive squamous cell carcinoma involving the cheek and the upper and lower jaw, with metastasis to the neck (*A*). The disease was destroyed, June, 1915, by electrothermic coagulation, together with the removal of the metastatic glands in the neck, and resection of the jaw, done by Dr. Laplace. *B*, the wound with a healthy appearance one month later; *C*, the wound, June, 1916; *D*, after a plastic operation by Dr. Laplace.

4. Local Recurrences Following Excision Treated by the Roentgen Rays: The three patients in this group have recovered. One has since died from intercurrent disease, but had remained well for several years. One other is well, after two years, and the third had, in addition to the local recurrence, a small metastatic nodule in the submental region. This disappeared under Roentgen-ray treatment, and he has remained well seven years since.

5. Recurrent Cases Treated by Roentgen Rays and Electrothermic Coagulation: The two patients have remained well approximately a year each.

It will be seen, from a study of this group of cases, that the results will compare favorably with any other single method of treatment, no matter how extensive it may be. It will be noticed, however, that these lip cases, for the most part, have been early cases, and there were no palpable glands, excepting in two cases in which palpable glands developed after operation. These disappeared under Roentgen treatment.

It will be justly argued that since microscopic studies were made in only a few cases, some of these cases may not have been malignant. This is a just criticism, and the only answer which I can make is that the patients should be treated in this early stage when there is no glandular enlargement, and as early as possible, when we may hope for 100 per cent. cures by simple measures instead of a local extensive excision by surgery and an extensive resection of the lymphatic glands of the neck. With reference to metastatic involvement, however, Bloodgood's[4] statistics show that in the cases in which the glands were dissected out, 37 per cent. were found to show metastatic involvement. Therefore, it is fair to assume that had at least some of the patients whom I have treated been operated on and the glands resected, there would also have been shown metastatic involvement. As to the probabilities of these lesions on the lower lip being malignant, I should like to refer also to Bloodgood's statistics up to December, 1913, in which he reviewed 200 lesions of the lower lip. Of these 200, fifteen, or about 7 per cent., were found microscopically to be benign. Therefore, the probabilities are that 93 per cent. of the cases that I have treated were also malignant. They all had the clinical appearances and history of malignant lesions, though some of them were early.

The next criticism, which is also a just one, is that some of the patients with these lesions have been well only a few years. Answering this, however, we all recognize that most recurrences will develop within the first six months, though a recurrence or metastasis may develop many years after the primary lesion.

Another criticism is that the number of cases treated is comparatively small. To this there is no answer excepting that the results obtained are sufficiently encouraging and represent, I believe, a distinct improvement on any single method of treatment which would prompt us into making more general use of combined methods in treatment, and particularly the use of Roentgen rays after electrothermic destruction or operation.

4. Bloodgood: Carcinoma of the Lower Lip: Diagnosis and Operative Treatment, Surg., Gynec. and Obst., April, 1914, p. 404.

It will be noticed that even in the cases treated surgically, none had a dissection of the glands from the neck, and while in the hands of a very competent surgeon this operation is perhaps not a serious matter, it is serious in the hands of many men who feel competent to remove the local lesion, but are not competent for these extensive neck dissections. By combining methods, such as I have outlined in this paper, we can save the patient the shock of a serious operation and the scars and the probabilities of implantation, etc., which are likely to follow operation.

Epithelioma of the Tongue.—1. Epithelioma Involving the Dorsum of the Tongue: In this group there are six cases. One patient, who had also metastatic involvement, did not recover. Four have recovered and are well after from one to four years. The sixth patient has been under treatment one month. The posterior two thirds of the left side of the tongue are involved; ulceration had taken place. He is being treated with radium placed in the fissure and deep roentgenotherapy applied both inside the mouth and externally, and has shown marked improvement at the end of a month. I will report briefly two of these cases:

Case 1.—Mrs. A. C., aged 52, was referred by Dr. Cleveland, Dec. 1, 1911, with an epithelioma on the left side of the base of the tongue, seven-eighths inch in diameter, elevated about one-eighth inch, with an indurated base, associated with enlarged glands in the submaxillary region on both sides, but more on the left. She had been treated previously by Dr. Schamberg for syphilis, but had recovered under treatment from all the other lesions, and a clinical diagnosis of epithelioma was made by Drs. Schamberg, Deaver, Burnstein and Gildersleeve, all of whom advised excision, which she refused. Under Roentgen-ray treatment she improved very promptly, and was shown at the dermatologic congress, Dec. 28, 1911; but Roentgen treatment produced no further improvement excepting that the enlarged glands in the cervical region had disappeared, and, July 19, 1912, the lesion on the tongue was destroyed by electrothermic coagulation. This was followed by Roentgen treatment, and today, so far as any of us can tell, she is well, four years after treatment.

Case 2.—Dr. X., woman, aged 48, referred to me by Dr. Kate Baldwin, Dr. William J. Taylor, and Dr. Robert Abbe, with an indurated ulcer about one-half inch in diameter on the posterior surface of the right side of the tongue, had also been seen by Dr. Charles Frazer. A section had been removed for microscopic study two weeks previously, and had been examined by Drs. Meine, Peckham, McFarland and Pearce. All reported carcinoma. The patient was seen by Dr. Abbe and the section examined by him, after which he advised against radium treatment. Dr. Taylor advised against excision. There was no evidence of metastasis. The diseased area was destroyed by electrothermic coagulation in the presence of Drs. Taylor, Baldwin and Cohen. This was followed by treatment with radium, the capsule being placed under the right side of the base of the tongue, and the patient was treated by deep roentgenotherapy inside the mouth and over the glandular area. She is perfectly well up to the present time.

2. Epithelioma Under the Tongue, and Involving the Floor of the Mouth: In this group there have been six cases. All showed extensive disease. All were destroyed by electrothermic coagulation locally, followed by deep roentgenotherapy. All healed primarily, but five developed recurrences, and three patients have died. Three are still under treatment.

Epithelioma of the Cheek.—1. Without Palpable Glands: In this group there have been three cases, all developed on the basis of leukoplakia. In only one was a section removed. This showed squamous cell carcinoma. This patient has only recently been treated, but seems to be doing well. The other two have remained well two and three years, respectively.

2. Epithelioma or Carcinoma Involving the Cheek, Gums, Jaw Bone, and the Submaxillary Glands: In this group, I have treated a number of recurrent cases, and generally speaking the results have as a rule been disappointing. In the primary group, in which combined methods of treatment were used, and in which there had not been previous destructive treatment, the results are much more encouraging, even though the disease is very extensive. Therefore, I shall confine the reports to this group of primary cases.

Case 3.—Mr. J. M. L., aged 59, seen in consultation with Dr. Laplace, Dec. 14, 1914, at which time he had an epithelioma on the inside of the left cheek 1½ inches in diameter, which had been developing during a year, also had a mass of metastatic glands under the jaw. Section showed squamous cell carcinoma. We gave him a course of preliminary treatment inside the cheek, outside the cheek, and over the glandular area, and the next day destroyed the disease inside the cheek by electrothermic coagulation, thus saving the cheek, which otherwise would have had to be excised, after which Dr. Laplace removed the metastatic glands. In two weeks, another course of deep roentgenotherapy was given, and four subsequent courses of deep roentgenotherapy, or six in all, were given, the last being April 10, 1915. So far as we can tell, he is entirely well today, and free from symptoms.

Case 4.—Mr. S. R., aged 68, was referred to me, May 28, 1912, by Dr. Laplace for postoperative treatment. May 27, 1912, Dr. Laplace removed an epithelioma which had been growing for a year, and had involved the inside of the left cheek, extended up along the alveolar process and on the palate. He was given postoperative treatment, and is well, June 12, 1916.

Case 5.—Mr. J. O., aged 57, referred to me by Dr. Laplace, March 10, 1914, for postoperative treatment; had had a growth involving the left side of the lower lip and extending on to the cheek for two years. He had always been a heavy smoker. There were present also metastatic glands in the left submaxillary region which had been excised. He was given active postoperative treatment, and was well, so far as we could tell, March 20, 1915. In June, 1915, he developed rather suddenly a tumor under the left jaw which was excised by Dr. Laplace, found to be cystic and believed not to be malignant. After this he was given two courses of postoperative treatment, with instructions to return at the slightest sign of any recurrence. He is probably still free from symptoms.

Case 6.—Mr. J. W., aged 75, was referred by Dr. Richard Barrington, Jan. 12, 1916, with an epithelioma involving the gum on the right side of the upper jaw in the region of the canine tooth, and extending through the cheek. This had followed a bruise by a piece of iron two years previously, and had not healed in the meantime. During the last six months, it had been painful. The indurated area was approximately three-fourths inch in diameter. The old teeth were extracted, the whole area was destroyed by electrothermic coagulation, making a hole in the cheek at least one-half inch in diameter, followed by Roentgen treatment, the wound healed up completely (even the cheek closing), and so far as we can tell, he is entirely well today.

Case 7.—Mr. T. G., aged 52, was referred to me, May 7, 1915, by Dr. Laplace, with an extensive carcinoma involving the entire left cheek, and with a vegetative tumor mass growing outward in the region of the lower left first bicuspid. April 15, 1915, Dr. Charles Frazer had removed the metastatic glands from the neck. The growth in the cheek had also been incised externally a few days before coming to me. There was induration in the neck tissues. I destroyed the whole side of the cheek by electrothermic coagulation. Later Dr. Laplace removed, at my request, the left half of the lower jaw which had been rendered lifeless. The cheek and tissues of the face healed, leaving an opening about 2 inches

by 1 inch in diameter, and appeared to be healthy, but later a recurrence developed in the tissues of the neck posterior to the surgical operation, which I was unable to control, and the patient died, October, 1915. It is of interest to note that there was no recurrence at the site of electrocoagulation, but recurrence in the primary operative area.

CASE 8.—Mr. J. L. P., aged 58, was referred to me, Jan. 20, 1913, by Dr. H. W. Dachtler, roentgenologist, Toledo, Ohio, and Dr. H. E. Deemer, Antwerp, Ohio, with an epithelioma at the left side of the angle of his mouth, about 1¼ inches in diameter, and involving half of the lower lip, a portion of the upper lip, and the whole inside of the cheek extending back to the angle of the jaw. The whole area was destroyed by electrothermic coagulation, followed by deep roentgenotherapy externally and radium inside at the angle of the jaw. Section showed squamous cell carcinoma. January, 1914, when we felt sure that all evidence of malignant disease had disappeared, at my request, Dr. Laplace did a plastic operation for the closure of his mouth with excellent results, and he is still well, after approximately three years.

CASE 9.—Mr. W. E. R., aged 40, was seen in conference with Dr. Ernest Laplace and Dr. W. L. Shindle, June 10, 1915, at which time he had an epithelioma involving the entire inside of the left cheek, the gums on both the upper and lower jaw, the alveolar process of the upper jaw, and almost the entire half of the left lower jaw, with a mass of metastatic glands in the neck. It had been growing at least eight months. Microscopic section removed showed it to be squamous cell carcinoma. It was considered surgically inoperable by Dr. Laplace. As a result of our conference, Dr. Laplace resected the metastatic glands from the left side of the neck. We then destroyed the disease inside the mouth by electrothermic coagulation, then resected the left half of the lower jaw, and followed by deep roentgenotherapy externally, and into the open wound, with the radium capsule applied under the posterior surface of the upper jaw. In this way we were able to get entirely rid of the malignant disease. Section showed squamous cell carcinoma. Oct. 3, 1915, as part of the necrotic bone was separating from the upper jaw, a severe hemorrhage developed which could not be controlled until the external carotid artery was ligated by Drs. Shindle, Gass and Gill. Feb. 15, 1916, the patient returned free from malignant disease. The opening in the mouth had closed to an oval shape 1 inch by 1½ inches in diameter and by wearing a patch over this opening, the patient was able to eat all kinds of food, and he returned to his occupation as a traveling salesman. At this time Dr. Laplace sutured the two edges of the opening, but there was too much tension, and the tissues separated again. A second attempt was made, April 15, 1916, with similar result. He returned a few days ago still free from any malignant disease, and this time Dr. Laplace made an effort to close the wound by means of the transfer of a skin flap and has obtained a beautiful result. We are hoping for a complete success this time. We are, however, gratified at the good result in the fight on the malignancy.

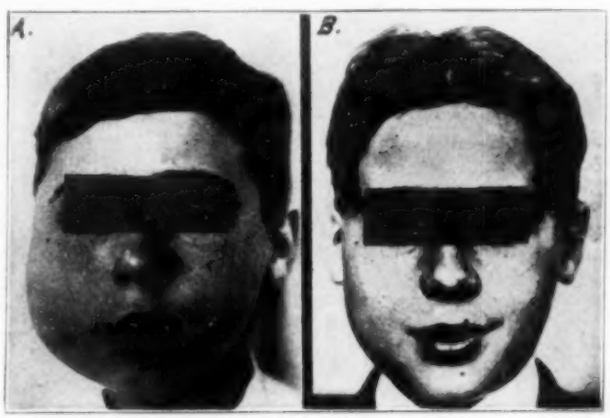

Fig. 8 (Case 16).—(*A*) Sarcoma involving all of the right lower jaw, part of the upper jaw, together with the soft tissues, Jan. 8, 1916, treated by deep roentgenotherapy (*A*); *B*, same patient apparently free from disease, May 8, 1916.

CASE 10.—Mr. D. G., aged 48, was referred, Feb. 20, 1915, by Dr. Paul Traub, with an epithelioma involving the inside of the right cheek and the left alveolar border, with metastatic glands under the right jaw. Microscopic section removed showed this to be squamous cell carcinoma. This case was treated similarly to Case 9. The metastatic glands were removed by Dr. Stillwell Burns, the disease was destroyed inside of the cheek by electrothermic coagulation, followed by radium inside the mouth, and deep roentgenotherapy externally, with resection of a portion of the jaw. Today, so far as we can tell, he is free from malignant disease. He has a hole in the right side of his mouth about one-half inch in diameter, which will be closed later.

CASE 11.—Mr. D. L., aged 48, was referred, July 8 1915, by Dr. J. F. Schamberg. Two years previously, Dr. Schamberg had treated him for syphilis until he was free from symptoms. About Jan. 1, 1915, he began to have evidence of disease in the left side of the mouth, for which he had two teeth extracted, February, 1915. When he saw Dr. Schamberg and myself in July, 1915, he had an epithelioma involving the entire inside of the left cheek, a portion of the alveolar process, and the upper surface of the alveolar process of the lower jaw, together with well marked metastatic carcinoma in the left submaxillary region. A clinical diagnosis of epithelioma was made by Dr. Schamberg. After conference with Dr. Stillwell Burns, he resected the metastatic glands from the left side of the neck, and at the same time I destroyed the malignant disease inside the mouth, followed by radium applications inside, and deep roentgenotherapy externally. Pathologic examination of the section removed showed this to be squamous cell carcinoma. He seemed to be getting well, but in February, 1916, there was evidence of recurrence in the cheek. I had made the attempt to preserve the cheek and destroyed only the disease inside. After this recurrence of the disease, I destroyed the entire left cheek by electrothermic coagulation, as well as the left lower jaw. Today most of the left side of the lower jaw has separated as a sequestrum. There is no evidence of malignant disease or metastasis. Later we are hoping to be able to close the mouth.

One other similar case was treated with ultimate failure; and two less advanced cases of epithelioma of the cheek have been treated with success.

Epithelioma of the Tonsil: Following are reports of four cases:

CASE 12.—Mr. M. U., aged 80, referred by Drs. Reed and Laplace, Nov. 2, 1911, with carcinoma of the tonsil which was about the size of a thumb, indurated, adherent, and ulcerated, also had enlarged submaxillary glands. A section had been removed and examined by Dr. Hammond, state pathologist at Trenton, and pronounced epithelioma. Under Roentgen treatment applied internally by means of a Morton tube, and externally by deep roentgenotherapy the disease completely disappeared. The patient died Feb. 17, 1913, but was reported to be without recurrence.

CASE 13.—Mr. A. P. U., aged 63, was referred to me, March 7, 1913, by Drs. Gleason, Warmuth, Murray and Dickerson (each separately), with epithelioma of the tonsil as an inoperable and hopeless case. The section showed squamous cell carcinoma. The disease was completely destroyed by electrothermic coagulation, followed by deep roentgenotherapy. April 29, 1913, he returned apparently free from all evidence of the disease, which opinion was confirmed by Drs. Gleason and Warmuth. He remained apparently well six months, until Oct. 13, 1913, when a small ulcer, one-quarter inch in diameter, developed in front of the anterior pillar of the fauces. I delayed in active treatment at this stage because I was uncertain whether the ulcer was due to roentgenotherapy or to the disease. It was a recurrence from which he died.

Case 14.—Mr. M., aged 41, referred, Oct. 7, 1912, by Drs. George W. Pfromm and M. P. Warmuth, with an epithelioma involving the right side of the soft palate, the alveolar process about the molar teeth, and the cheek. The whole area was completely destroyed, followed by roentgenotherapy. Dec. 6, 1912, the molar teeth were removed, and the disease about the alveolar process again destroyed. Up to the present time he has remained well. Dr. Warmuth considered this case entirely inoperable.

Case 15.—Mr. E. L., aged 43, was referred, Oct. 5, 1915, by Dr. H. M. Goddard with an epithelioma involving the right tonsil and extending on to the palate. The Wassermann test was negative. A section removed at the Jewish Hospital showed it to be carcinoma. It was considered inoperable. Another section was removed, and immediately the whole diseased area was destroyed by electrothermic coagulation, followed by radium internally, and the Roentgen treatment externally. Microscopic examination of the section removed showed squamous cell carcinoma. So far as any of us can tell today, there is no evidence of malignant disease present.

Sarcoma of the Mouth.—In this group I have had under treatment eleven cases. All have shown good results. In one there was metastasis to the spinal column and ultimately death. This patient had been previously operated on and had a recurrence. The others have recovered or are improving, but for brevity's sake, I will confine my report to one case, which I think should convince the most skeptical:

Case 16.—A boy, aged 11, brought to my clinic, Jan. 8, 1916, had been seen four months previously by Dr. John B. Deaver, and pronounced inoperable, after which he received Roentgen treatment at another hospital for two months without any apparent effect. He was then treated for another month at a different hospital, by means of the Roentgen rays, without any effect, after which he saw Dr. J. C. Da Costa, who advised against operation, and also advised that it be left alone. All had diagnosed sarcoma. Jan. 8, 1916, he had a tumor involving the entire right lower jaw, part of the upper jaw, and the soft tissues over the entire right side of the face, and extending up into the temporal region. Roentgenoscopy revealed total absorption by the disease of the lime salts from the right side of the lower jaw, with partial absorption of the upper jaw, and destruction of the outer wall of the antrum. The patient was given fifteen doses, January 18 and 19, crossfiring on this disease from fifteen different angles. When he returned in three weeks for the second course of treatment, the tumor tissue had been reduced to half, and there was distinct evidence of recalcification of the bone. He has had six similar courses of deep roentgenotherapy, and so far as we can tell at present he is free from disease, and there has been almost complete recalcification of the bone.

CONCLUSIONS

1. The cases forming the basis of this report, excepting those involving the lower lip, were almost entirely inoperable, and therefore every success is a distinct advance and every failure only a loss of time, energy and effort.

2. Any lesion about the mouth which does not show a tendency to heal within a few weeks should be looked on with suspicion of being malignant, and in case of doubt should be destroyed or removed.

3. I believe that early lesions about the mouth can be destroyed by electrothermic coagulation with less loss of tissue, and more success than by any other means.

4. Deep roentgenotherapy should be added to any other method of destruction or removal of malignant disease.

5. Combined treatment by surgery, electrothermic coagulation, radium and deep roentgenotherapy will cure some patients who are otherwise hopeless.

1321 Spruce Street.

RADIUM IN THE TREATMENT OF CANCER AND VARIOUS OTHER DISEASES OF THE SKIN *

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CHICAGO

Although some do not admit that radium acts on the skin and other tissues in a manner different from Roentgen rays, I am convinced of the error of this view. There are both theoretical reasons and strong clinical evidence for the opinion that the effects of these two agents differ.

The rays emitted by radium are of three, and according to some of four distinct kinds, known as alpha, beta, gamma and delta rays. From the Roentgen-ray tube are given off rays that are similar to but by no means identical with the gamma rays or radium. The

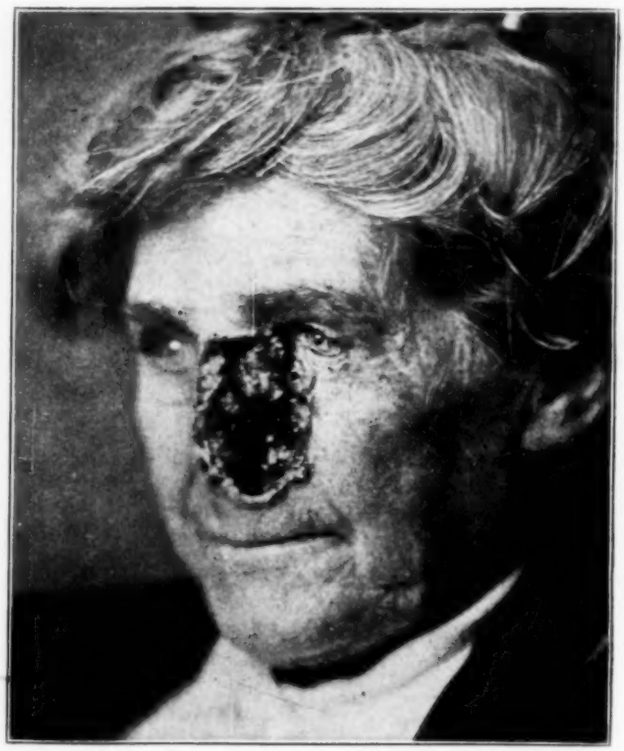

Fig. 1.—Epithelioma of nose, upper lip, cheek and eyelid. Photograph taken September, 1914.

character of the rays emitted by the Roentgen-ray tube and radium being different, one would expect that the reactions in the skin would be different. And this is what we find to be the case when critical examination is made of the results obtained with both agents.

The reactions in the skin differ in several important particulars, some of which may be briefly considered.

Both Roentgen rays and radium may produce in living tissue, first, a selective and, second, an inflammatory action.

By selective action is meant a retrogressive change in the tissues that goes on without visible macroscopic inflammation. The meaning of inflammatory action which is produced by Roentgen rays or radium is self-evident.

* Read before the Section on Dermatology at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

In the case of Roentgen rays the selective action is by far the more important. The depilation of the hair in ringworm of the scalp by Roentgen rays is a good example of the selective action of this agent. Here the hair is made to fall without the intervention of any visible inflammation.

All of the various methods for measuring Roentgen-ray dosage are directed toward the estimation of the so-called erythema dose. Few Roentgen-ray therapeutists are willing to push the dose, systematically and constantly, to a point at which destructive inflammation may occur. With radium the case is entirely different. While some pathologic tissues, as keloids, and vascular nevi, may be made to yield to the selective action of radium, erythema is much more frequently excited with therapeutic doses of radium than with Roentgen rays, and the dose may even be pushed to the point of destructive inflammation without doing harm, if proper precautions are observed.

This is one of the most important and interesting of the differences between therapeutic Roentgen rays and radium reactions.

In a word, Roentgen rays, while a splendid "selective," are, in general, a poor "destructive" agent, when good cosmetic effects are desired, because of the well known dangers and the uncertainty of the repair of the tissues.

Radium, on the other hand, is not only a useful "selective" but also a good "destructive" agent. This destructive power is one of its important uses because of the ease of its employment and the elegance of the reparative tissue.

The destructive or caustic power of radium must be used, however, with discrimination and care when fine cosmetic effects are desired. Only by long experience can the full value of its destructive effects be utilized. Too great dosage may result in sluggish ulcerations or later on in the production of telangiectasia, atrophy, etc., which detract very much from the cosmetic appearance of the tissues of repair.

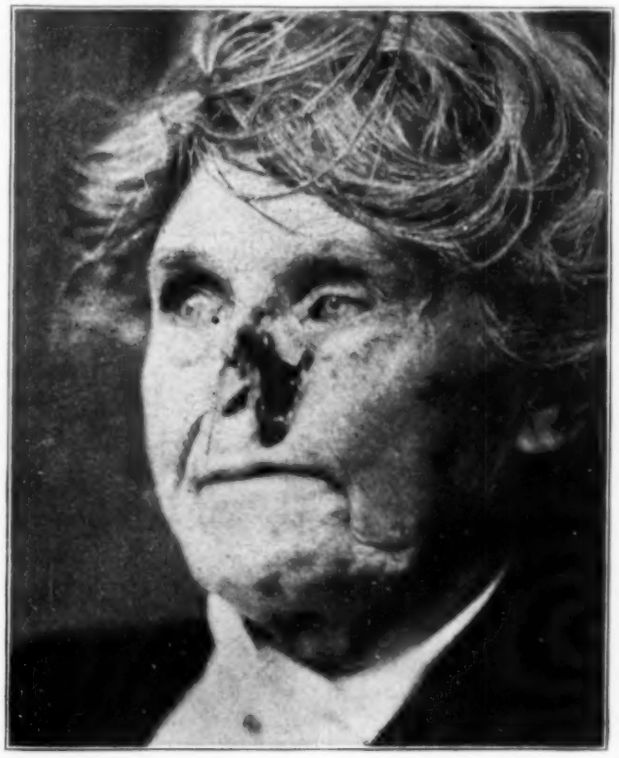

Fig. 2.—Patient in Figure 1, showing recovery after sixty hours' radium treatment. Photograph taken July, 1915.

From the foregoing may be deduced some of the general principles of radium therapy.

Radium shares the field with Roentgen rays in the treatment of a number of intractable disorders of the skin. In certain diseases, radium and Roentgen rays may be regarded as alternative agents, the choice depending on the convenience of the operator. Often a combination of Roentgen rays and radium is desirable. In some diseases Roentgen rays are much more convenient and efficient than radium, while in a certain restricted and peculiar field of dermatology radium holds an absolutely unique position. Among the disorders in which radium has been found of value are the following:

1. *Cancer of the Skin.*—I have now treated over 200 cases of cancer of the skin, and failure to bring about recovery has been rare.

Failure occurs as a rule only in the very extensive cases often previously treated by other methods. In some of these cases loss of tissue is so extensive that repair is almost impossible.

In other cases there seems to be a lack of power of vital reaction on the part of the tissues, which finally may refuse to respond at all. On the whole, however, radium is one of our most satisfactory agents in the treatment of skin cancers, and certain cases will yield which have apparently resisted all the usual measures.

The general rule that operable cancers should be operated on does not apply in my judgment to the majority of cases of skin epithelioma, particularly those of the rodent ulcer type. In many of these cases radium alone or combined with surgery is superior to surgery alone, the elegance of the cosmetic results and the relative infrequency of recurrence being among its advantages. Small epitheliomas can readily be healed with one-fourth or one-half strength applicators screened with 0.1 mm. of lead by giving an exposure of from six to ten hours in the course of three or four days.

With extensive epitheliomas I frequently use 150 or more mg. of radium element contained in a half-dozen or more tubes and disposed over the surface of the epithelioma.

It is very convenient to have at one's command tubes containing as much as 50 or more mg. of radium element. One of these can be inserted, for instance, into the external auditory canal or deep in the cavity of the orbit if the eye has been removed. Depending on the disposition of the tubes and the screening employed, healing of very extensive epitheliomas may be brought about in from three to twenty or more hours. With large quantities of radium, however, it is very important not to produce severe reactions or burns, as these are liable to be very painful and may heal very slowly.

2. *Cancer of the Mucous Membranes.*—Sometimes the result of the radium treatment of buccal, lingual and pharyngeal epithelioma is brilliant and at other times disappointing. In cancer of these structures, metastases may occur so early in the neighboring lymph glands that while the original lesion may be healed the general progress of the disease is merely checked. Prolonged and persistent treatment of the adjacent infected glands with gamma rays will often materially retard their growth.

The method of treatment of cancer of the mucous membranes presents problems that constantly tax one's ingenuity. It is often possible to attach to the teeth one end of a piece of silver wire, the other end being inserted into a piece of pure gum rubber tubing which carries the radium applicator.

Fig. 3.—Vascular, deep purplish-red nevus, markedly elevated and rapidly spreading. Patient aged 6 weeks. Photograph taken September, 1914.

I have devised a number of simple appliances that serve more or less well the purpose of keeping the heavily screened radium in contact with the growth.

Several illustrative cases will show the method of dealing with certain of these epitheliomas:

Case 1.—*Epithelioma of posterior aspect of soft palate.*—This patient, aged 45, referred by Dr. E. H. Skinner and Dr. D. Walton Hall of Kansas City, Mo., was first seen Nov. 1, 1915. Diagnosis was clinical and microscopic. Treatment was carried out by passing 50 mg. of radium element screened with 1 mm. of silver through the anterior nares until it rested on the growth. A total exposure of fourteen hours was given. Improvement was almost immediately manifested, although it had previously been refractory to Roentgen rays.

Three months later the growth had completely retrogressed. The good result in this case was undoubtedly contributed to by deep Roentgen rays subsequently applied by Dr. Skinner over the growth and the regional lymph glands.

Case 2.—*Epithelioma of the buccal mucous membrane.*—Man, aged 60, referred by Dr. G. T. von Colditz, was first seen, Oct. 1, 1915. Diagnosis was clinical and microscopic. The growth was situated on the buccal mucous membrane opposite the root of the right lower bicuspid tooth. It was about 2 cm. in diameter, ulcerated and deeply infiltrated. The treatment consisted of a total of thirty hours' exposure in fractional doses with 50 mg. radium element screened with 1.5 mm. of silver.

December 17, the growth had nearly disappeared, but there was still to be felt some deep infiltration. The growth was then rayed with 75 mg. radium element screened with 1.5 mm. of silver for a total of twelve hours.

Feb. 21, 1916, nothing but a smooth supple scar remained. The patient was also vigorously rayed over the regional lymph glands of the neck to prevent metastases if possible. At the present time he continues in good health.

Case 3.—*Epithelioma (?) supervening on extensive leukoplakia.*—Man, aged 54, referred by Dr. A. B. Kanavel, was first seen, March 16, 1915. Diagnosis was clinical, as it was not thought advisable to remove material for a section. The patient exhibited very extensive leukoplakia of the entire left buccal mucous membrane. There was marked ulceration, especially posteriorly, and the affected mucous membrane was covered with a very foul secretion. The mouth could be opened with difficulty. The regional lymph glands of the left side of the neck were swollen to the size of hazelnuts, and were hard but not tender to the touch. Treatment consisted of "cross firing" the cheek and neck with 150 mg. radium element contained in various applicators and screened with 2 mm. of silver for a total of sixty hours. July 2, 1915, the mucous membrane of the cheek was entirely well and showed a smooth and supple scar, while the glands of the neck had entirely disappeared. When seen nine months later (April, 1916) the patient was in remarkably good health and had gained 30 pounds in weight.

This case is illustrative of six similar cases treated in the same manner and resulting in recovery.

3. *Vascular Nevi ("Birth Marks").*—The treatment of vascular nevi is an art in itself. In certain types of very extensive nevi the results from radium treatment are far in advance of those obtained by other methods. Radium has the advantage of being painless, while the cosmetic appearance is often very excellent.

There is a certain place, however, for other well known methods, and in individual cases radium may be supplemented or replaced by electrolysis, carbon dioxid snow and the Kromayer lamp, all of which give splendid results in selected cases.

Fig. 4.—Patient in Figure 3, at age of 1½ years, showing results of radium treatment. Photograph taken March, 1916. Not retouched.

4. *Keloid.*—This condition still continues to yield excellent results from radium treatment. Pain is usually relieved and the cosmetic results are good.

5. *Tuberculosis.*—In certain cases of lupus vulgaris the results from radium treatment are excellent, but on the whole are probably inferior to those obtained with the Finsen light.

Unfortunately there seems to be no selective action on lupus tissue, and the caustic effect of radium must be invoked to destroy the patch. In lupus of the mucous membranes radium is sometimes of great service. In tuberculosis verrucosa cutis the results from the destructive action of radium are usually excellent.

6. *Lupus Erythematosus.*—In this intractable disease radium is often of the greatest value. While relapses may occur, as might be expected, persistent treatment often results in a favorable outcome. In my experience radium is a most valuable adjunct to our armamentarium, and in some cases has succeeded when other measures have failed.

7. *Sycosis Vulgaris.*—I now treat long standing cases of sycosis vulgaris which have resisted other measures by removing the hair with radium. Any slight atrophy of the skin that may be produced is greatly preferred by most patients to the unsightly appearance caused by the sycosis which usually renders it impossible for them to follow their occupations. In careful hands this method of treatment may be recommended.

8. *Lichenification of the Skin.*—This obstinate condition usually yields to radium. Treatment consisting of several ten minute exposures with unscreened quarter strength applicators is frequently successful in relieving itching, and is often followed by the disappearance of the lesions.

9. *Pruritus.*—Localized pruritus (pruritus ani, etc.) is often relieved by radium. Radium treatment is especially indicated in cases of pruritus ani in which no local lesion can be found to account for the pruritus. If situated externally, unscreened varnish apparatus may be used, and exposures of from five to ten minutes, repeated several times, are often successful.

When within the anal opening I usually employ tubes of from 25 to 50 mg. element, screened with 0.5 mm. of silver, and give three or four exposures of from fifteen to twenty minutes' duration. This course of exposures may be repeated in a few weeks. Usually great relief, and sometimes recovery is experienced after one or two such courses of treatment.

In addition to the conditions referred to above, a number of other diseases of the skin are greatly benefited and sometimes completely relieved by radium; but these will be commented on at some future time.

59 East Madison Street.

Preparedness.—Who knows what we are facing as a nation in the years to come? One thing we do know—there is to be a struggle for existence, and the nation that is physically sound at the core is the nation that will hand down its civilization to the centuries. To study where we are weak, to study how we can make each generation a little better than the preceding one, instead of drifting with the tide of so-called natural evolution and trusting to luck that we shall not meet the destructive fate of all previous civilizations; to find out the facts about ourselves and our children and proceed to do our duty by our bodies and theirs by applying the lessons of science in the art of living; to accumulate health and vitality instead of disease and degeneration—these things I look on as simple elementary measures in preparation for either war or peace.—Eugene L. Fisk.

LEUKEMIA CUTIS

WITH REPORT OF A CASE *

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MINNEAPOLIS

Since Biesiadecki[1] in 1876 first described the skin changes in leukemia, the subject has been of absorbing interest to dermatologists.

In a review of sixteen cases of acute, or subacute, leukemia cutis, Hazen[2] found that the cutaneous manifestations consisted of petechiae, nodules, vesicles, bullae, papules, maculopapules, pustules, hematomas and tumors. In twenty-six cases of chronic lymphatic leukemia, he found an occurrence of pruritus, prurigo, urticaria, bronzing, vesicles, pust les, localized infiltrations, nodules and tumors.

Arndt,[3] in a paper read before this section in 1914, prefers the name lymphadenosis to that of leukemia, and according to the blood changes, distinguishes an aleukemic form, if the blood is normal, a subleukemic form if the number of white cells is normal or very little increased but the proportion of lymphocytes is augmented, and a leukemic form when there is an absolute permanent, progressive increase of lymphocytes and the total number of leukocytes is augmented.

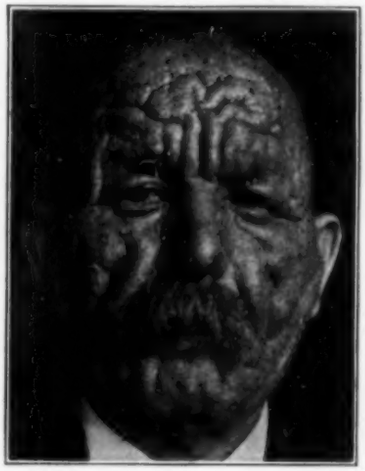

Fig. 1.—"Leonine" expression and the great amount of infiltration of the face and head, Nov. 12, 1914.

Leukemia cutis is further divided into a universal form and a circumscribed form. The universal form is very rare, and only four cases have been reported, according to Arndt.[3] The circumscribed form is much more common, and many cases have been reported.

The possibility of the occurrence of an aleukemic leukemia cutis is well recognized, as a reference to the articles of Hazen[2] and Arndt[3] will show. Hirschfeld,[4] in a recent article, reports a case of aleukemic myeloid leukemia and calls attention to the much more frequent occurrence of aleukemic lymphatic leukemia.

The case which I report is of interest for several reasons: It has been aleukemic in its course so far. In spite of repeated blood examinations, nothing abnormal has been found. Of interest also is the universal distribution of the infiltration, in view of the rarity of the universal form. Arndt[3] says that the universal form never shows tumors. My case showed no tumors, but did show some flat elevations on the back of the neck.

Finally, I have had the opportunity of observing the case from November, 1914, and of studying, microscopically, the results of treatment on the skin, having sections taken from the same place in 1914 and again in 1916.

In a careful search of the literature, I have found illustrations of but two cases that resemble mine.

* Read before the Section on Dermatology at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

1. Biesiadecki: Med. Jahrb., Vienna, 1876, p. 233.
2. Hazen, H. H.: Skin Changes in the Leukemias and Allied Conditions, Jour. Cutan. Dis., 1911, xxix, 521.
3. Arndt, G.: Diseases and New Growths of Lymphatic Origin, THE JOURNAL A. M. A., Oct. 10, 1914, p. 1268.
4. Hirschfeld, Hans: Die generalisierte aleukämische Myelose, Ztschr. f. klin. Med., 1914, lxxx, 126.

Schultz[5] reported one and Arndt[6] the other. Arndt's case was of the universal form.

Winfield[7] reported a case resembling mine in its onset and its intense itching, and also in the normal blood findings. The photograph of his patient shows, however, a striking difference in appearance to that of mine.

CASE REPORT

F. F., man, aged 48, weight 143 pounds, normal weight 160, American, referred by Dr. G. J. Thomas of the Mayo Clinic,

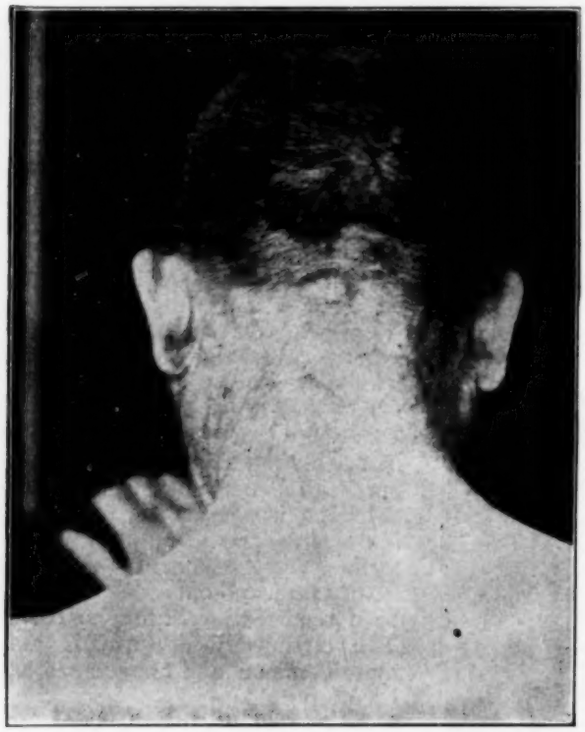

Fig. 2.—Infiltrations on back of neck, Nov. 12, 1914.

was first seen by me, Nov. 12, 1914. The family history was negative. Personal history was negative, except for an attack of pneumonia many years before.

The present complaint began about two years before, as an itching spot on the forehead. It gradually involved the face and scalp, and then spread to the body and limbs. The chief complaint was the intense itching, loss of weight and weakness.

The face was swollen and edematous, and the folds were markedly accentuated. The skin, on close examination, looked verrucous, and in places raw from the continuous rubbing to relieve the itching.

The scalp was thickened over its entire extent, and the neck was thickened, but also showed some flat elevated lesions from the size of a pea to that of a marble. The skin of the body was leathery, and felt thicker than normal. It showed a number of small, discrete papules. These frequently had the tops scratched off.

The forearms and back of the hands looked lichenoid. The skin was dry, thickened and rough, and the follicles here showed considerable hyperkeratosis. Numerous small papules were scattered over the surface. The upper arm was thickened, but had fewer of the papules.

The skin on the shins was dry and showed numerous scratch marks. It was thickened and showed numerous papules. This condition was less marked on the thighs.

The posterior surface of the body was not so markedly involved, but was dry and rough and thicker than normal.

In recapitulation, the whole cutaneous surface was involved to some extent, being rough and thicker than normal, with the face and extremities showing the most involvement.

The cubital glands were enlarged. The femoral, inguinal and axillary glands were enlarged, but not markedly so. The urine was negative. The Wassermann reaction was negative. The spleen was not palpable, but the liver was enlarged. The patient had an inguinal hernia.

Numerous blood examinations have been made, and neither an actual nor a relative increase of the lymphocytes has been found. A slight anemia has been shown in all the examinations; the following is an example: hemoglobin, 75 per cent.; leukocytes, 6,000 per cubic millimeter; small lymphocytes, 15 per cent.; large lymphocytes, 20 per cent.; polymorphonuclears, 63 per cent.; eosinophils, 2 per cent.

A Roentgen examination of the chest at this time by Dr. Hugh S. Willson revealed a matted, fuzzy shadow filling the posterior mediastinum and extending over an inch on each side of the sternal line. There was evidently a hyperplasia of the glandular elements of the mediastinum. The aortic arch was very prominent and extended 1½ inches to the left of the sternal line.

Nov. 12, 1914, a small piece was cut from the face near the left ear. The tissue was prepared for microscopic study by Dr. G. M. Olson, and revealed thickening of the epidermis, and there was some parakeratosis and a very marked acanthosis. The dermis was filled with a dense infiltration. Prof. E. T. Bell of the University of Minnesota reported that

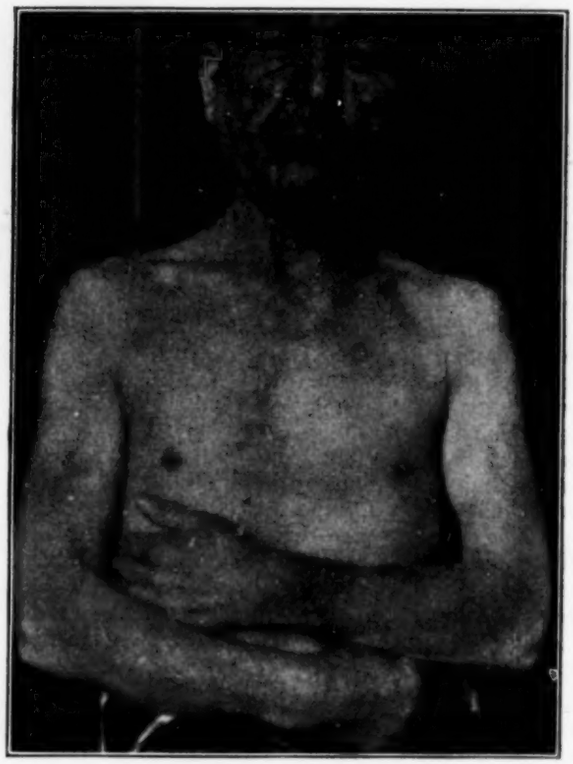

Fig. 3.—Thickening of skin on arms and hands, Nov. 12, 1914.

it looked like lymphoid tissue, not merely lymphocytic infiltration. It had a reticulum like a lymph node. The cells were of one type, the small lymphocyte.

In spite of the negative blood findings, a diagnosis of leukemia cutis was made, and the patient was put at once on Roentgen treatment. This has been very patiently and thoroughly carried out for me by Dr. H. G. Irvine.

After the first eight treatments, the patient complained of extreme weakness. An examination of the urine revealed the presence of albumin and the patient was sent home to rest. He has returned at intervals ever since, and has been

5. Schultz, Frank: Die Röntgentherapie in der Dermatologie, Berlin, Julius Springer, 1910, p. 136.
6. Arndt, G.: Zur Kenntnis der leukämischen und aleukämischen Lymphadenose der Haut, Dermat. Wchnschr., 1911, xviii. Ergänzungsheft, p. 1.
7. Winfield, J. M.: Multiple Lymphoid Tumors of the Skin, Jour. Cutan. Dis., 1913, xxxi, 245.

treated with the Roentgen ray in divided doses all over the body. Some of this treatment has been carried out with filters of aluminum, and other treatments were unfiltered. He has suffered no other relapse, and the albumin has disappeared. The itching has almost gone, and he can sleep nights except when he gets too warm.

March 30, 1916, the patient appeared, after an absence of several months. He had been operated on, February 8, for hernia. He lost some weight following this, but has gained again and now weighs 162 pounds. He looks fine and feels

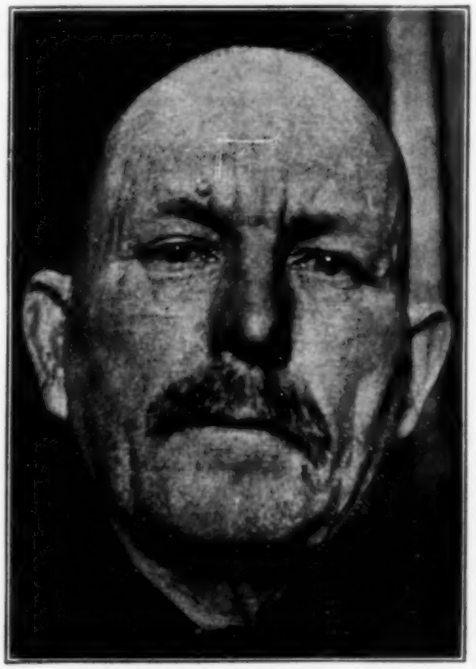

Fig. 4.—Results of treatment, April 1, 1916.

fine. The itching at present is manifest only around the eyes and on the body a little at night.

An examination, made March 30, 1916, showed the following:

Face: The deep furrows are gone, except a few on the forehead. The thickening over the entire face has largely disappeared. The infiltrations on the back of the neck are practically gone.

Body: The entire body surface still feels a little thicker than normal. The skin is leathery and harsh, but much better than in 1914. The body shows a few prurigo-like papules with the tops scratched off. A few slightly red, scaly patches show on the abdomen, arms and thighs. These are erythrodermic, or premycotic-like, in appearance.

Extremities: The thickening on the arms has largely gone. The lichenification on the backs of the hands and wrists is about gone. A few prurigo-like papules appear on the arms. The thighs show the prurigo-like papules and a few scaly patches. The shins and calves are very much improved, but show a number of prurigo-like papules and some redness, especially marked on the left calf.

The surface glands are not enlarged, except in the inguinal region, where they are palpable. The mouth and throat are negative.

A Roentgen examination by Dr. Willson showed very little change in the mediastinum since the first examination.

A biopsy on the face within one-half inch of the 1914 biopsy was made, March 31, 1916. A biopsy was also done on the abdomen, cutting out one of the scaly lesions.

The examination of the section from the face showed that the acanthosis has disappeared and the epidermis is normal. The infiltration in the dermis is markedly diminished, and is now located mainly about the hair follicles. It still consists of small lymphocytes.

The section from the abdomen showed a practically normal epidermis, but a dense infiltration around a hair follicle. This infiltration was of the same type of cell, the small lymphocyte.

COMMENT

In making the diagnosis of a case such as mine, with normal blood findings throughout, dependence must be made on the microscopic picture and the clinical manifestations on the skin.

The histologic picture is absolutely typical. It shows a pure lymphocytic infiltration of the skin, the type of cell being the small lymphocyte.

Mycosis fungoides shows a striking polymorphism of the cells, fibroblasts, small lymphocytes, lymphoblasts, Marschalko's plasma cells, giant cells and mast cells. In the flat premycotic infiltrations, we find numberless eosinophils according to Arndt.[8] A premycotic mycosis fungoides was the only other condition that I held to be necessary to bar out, and the microscope did this completely.

In reference to the etiology of the leukemias, the tendency to regard them as infections seems to be growing. Fraenkel and Much[8] found a bacillus in lymphatic leukemia. Bunting and Yates[9] isolated a diphtheroid organism in Hodgkin's disease, and on inoculation of monkeys produced a chronic progressive lymphadenitis and were able to isolate the organism in pure culture on the death of the animal. Simon and Judd[10] and

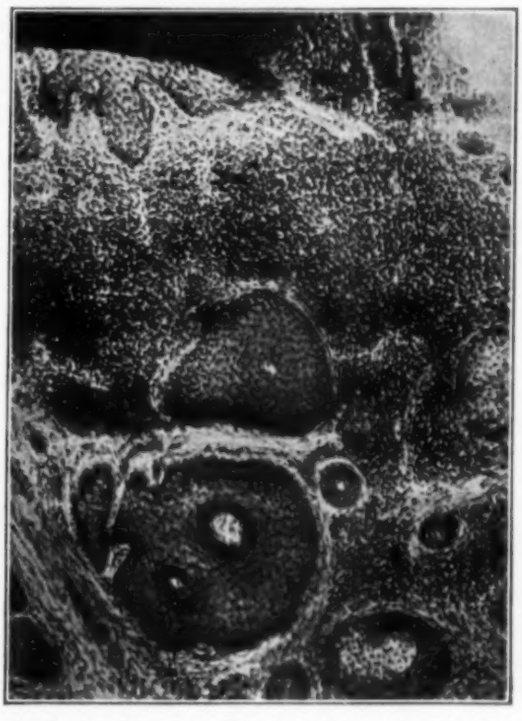

Fig. 5.—Section from face, Nov. 12, 1914; marked acanthosis and dense infiltration of small lymphocytes.

Steele[11] isolated similar organisms in lymphatic leukemia. Wilbur[12] reports the demonstration of strepto-

8. Fraenkel, E., and Much, H.: Ztschr. f. Hyg., 1910, lxvii, 159.
9. Bunting, C. H., and Yates, J. L.: An Etiologic Study of Hodgkin's Disease, THE JOURNAL A. M. A., Nov. 15, 1913, p. 1803; Second Note, Feb. 14, 1914, p. 516.
10. Simon, C. E., and Judd, C. C. W.: Acute Lymphatic Leukemia, THE JOURNAL A. M. A., May 15, 1915, p. 1630.
11. Steele, A. E.: Corynebacterium Hodgkini in Lymphatic Leukemia and Hodgkin's Disease, Boston Med. and Surg. Jour., 1914, clxx, 123.
12. Wilbur, R. L.: Leukemia, an Infection? THE JOURNAL A. M. A., Oct. 9, 1915, p. 1255.

cocci in leukemia. Rhea and Falconer[13] also reported a diphtheroid organism in Hodgkin's disease. Bunting and Yates[14] recently reported the isolation of a diphtheroid organism in a case of leukemia and in one of lymphosarcoma. They maintain that there is a group of apparently related diseases in which this organism

Fig. 6.—Section from same area of face, March 31, 1916; epidermis practically normal; infiltration very much less and located around the hair follicles.

is found. They include in this group Hodgkin's disease, lymphatic leukemias, the pseudoleukemias (lymphosarcoma), Banti's disease and probably mycosis fungoides.

Bloomfield[15] maintains that in view of the variety of organisms found by these various investigators, extreme conservatism should be maintained in interpreting any one as the etiologic agent of a specific disease.

In regard to the therapy of leukemia cutis, it would be proper to introduce the well known benzol (benzene, C_6H_6) treatment if the blood picture was leukemic. As my patient has at no time shown a leukemic blood, I depended on the Roentgen ray, both superficial and deep. The results so far in this case are encouraging, but as to the ultimate outcome I am not prepared to say. The latest skin sections still show some lymphocytic infiltration, very much less than formerly, but still present, and the Roentgen report still shows the mediastinal glands enlarged.

Burnam[16] recently has treated with considerable success a few cases of Hodgkin's disease, and, at present, is working on the leukemias. He uses radium over the spleen; but in the absence of radium depots this form of therapy is at present out of reach of the average man. It presents prospects, however, for the future.

625 Syndicate Building.

13. Rhea, L. J., and Falconer, E. H.: A Report of the Bacteriologic Examination of Enlarged Lymph Nodes Removed from a Patient with Hodgkin's Disease, Arch. Int. Med., March, 1915, p. 438.
14. Bunting, C. H., and Yates, J. L.: Bacteriological Results in Chronic Leukemia and in Pseudo-Leukemia, Bull. Johns Hopkins Hosp., 1915, xxvi. 376.
15. Bloomfield, A. L.: The Bacterial Flora of Lymphatic Glands, Arch. Int. Med., August, 1915, p. 197.
16. Burnam, C. F.: Personal communication to the author.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. HEIDINGSFELD, PFAHLER, SIMPSON AND SWEITZER

Dr. H. H. Hazen, Washington, D. C. In regard to Dr. Sweitzer's case, it seems to me that besides a true leukemia cutis, the diagnosis might possibly rest between pseudoleukemia, corresponding to Hodgkin's disease, and benign lymphoma, similar to the case reported by Winfield. Referring to the other papers, we should bear in mind the fact that there are quite a number of types of cancer, (1) the prickle cell cancer; (2) the cuboidal cell cancer; (3) the basal cell cancer; and (4) cancer of the cutaneous appendages. It does not make any difference what prickle cell cancer comes from, whether from scar tissue or a keratosis or a Roentgen-ray burn, it is the type of cancer that usually leads to metastasis. It makes no difference whether the primary growth is located on the tongue, lip or hands. About a year ago I studied sixty such cases and in thirty-eight instances I was able to follow them up for five years. Of these, about twenty-five showed metastases. It is a very difficult matter to tell when a prickle cell cancer will metastasize: I have seen it occur within one month. The cuboidal cell type of cancer is not so well known. Histologically, it resembles the basal cell type, but it leads to metastases almost as readily as the prickle cell type. Pure basal cell tumors, on the contrary, never lead to metastases. My sections show conclusively that basal cell tumors can spring from the rete cells. As regards tumors of the appendages of the skin, we cannot say very much about them. The most important thing to remember is this, that all tumors, in the vast majority of cases, come from precancerous dermatoses. It is of further interest to note that keratoses of the face usually give rise to the basal cell type of tumor, while those on the back of the hands give rise to the prickle cell type. A different method of treatment is called for in dealing with these two types. In the latter we must not only get rid of the local growth, but also prevent it from reaching the glands by thorough extirpation of the adjacent lymphatics. Excise the entire lesion with the cautery and then study the growth histologically. It is not good surgery to use the knife to remove a piece for diagnosis.

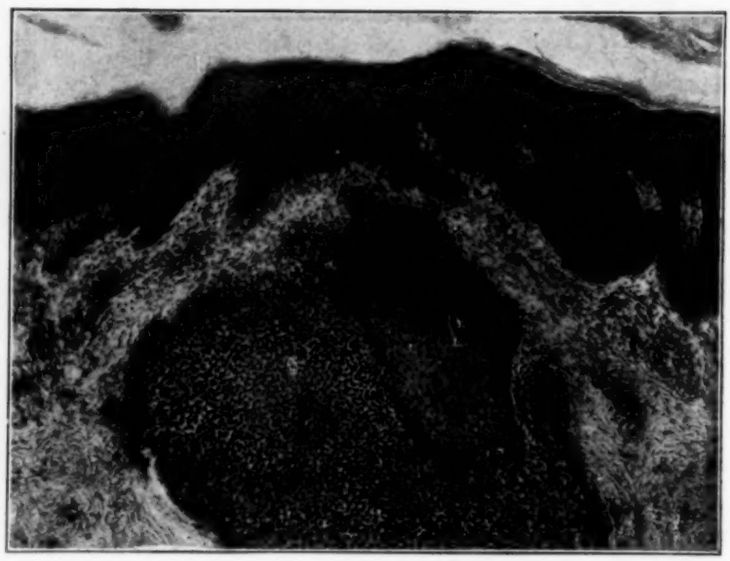

Fig. 7.—Section from abdomen, March 31, 1916; dense lymphocytic infiltration around a hair follicle.

We are sadly in need of more accurate statistics. The majority of men do not follow up their cases long enough. I

recently saw three cases treated by radium, and the results were so distressing that I am very skeptical in regard to its value as at present employed by many men. They were three operable cases that went on to bad results after the use of radium.

DR. W. H. B. AIKINS, Toronto: My attention was first called to the therapeutic value of radium in Paris at the Radium Institute, which was being conducted by the late Dr. Louis Wickham. I became quite enthusiastic, and still remain so, but have tempered my enthusiasm by many years of experience. I still believe strongly in the judicious use of radium. Dr. Simpson's results are entirely in accordance with my own experience.

DR. RICHARD L. SUTTON, Kansas City, Mo.: Dr. Heidingsfeld has called attention to a much neglected but very important factor in the etiology of carcinoma of the skin, particularly carcinoma of the prickle-cell type. It has long been recognized that certain conditions of the skin (particularly long-standing, dry seborrhea), predispose to cancer, and the development of one of the most common of all precancerous lesions, seborrheic keratosis, is frequently a direct result of trauma, such as a cut from a razor while shaving, and similar injuries. With respect to the histopathology of carcinoma basocellulare, I beg to differ very decidedly with Dr. Heidingsfeld. Krompecher's classification may not be perfect, but his researches have done much to elucidate the question in point. Any one who has taken the trouble to run through a well selected collection of three or four thousand serial sections of basal-cell carcinoma will be forced to conclude that the growths almost invariably spring from the epidermis at some point in or near the basal layer, and rarely, if ever, from the appendages of the skin. As Hertzler and others have demonstrated, in prickle-cell growths the apparently independent masses which are sometimes found are always connected to the main body of the growth, although careful search frequently is necessary before this connection can be traced. In basal-cell growths the tumor not infrequently is shaped like a bunch of grapes, the stem serving to connect the main body with the epidermis; and unless the specimen includes this stem-like link, the observer is very liable to jump at conclusions, and wander off imbued with the idea that the tumor originated at some point other than the basal layer of the epidermis.

DR. HOWARD MORROW, San Francisco: I am inclined to agree with Dr. Sutton that the basal layer of the skin is the origin of many tumors of the rodent ulcer type. I believe they can spring from the basal cell as well as from the appendages of the skin. It is our first duty to decide which variety of epithelial growth we have to deal with. When it occurs on the face, it can usually be recognized clinically. When it is of the squamous cell variety the case should be treated surgically and in a radical way, but when the growth is of the basal-cell type there are many methods that can be used which are just as satisfactory as radium. Arsenic should not be overlooked entirely, because there are many patients who will not permit any surgical treatment whatever, and if we refuse to treat them, they will fall into the hands of the quacks. As a matter of fact, there are certain cases where arsenic paste acts very well, especially in ulcerating lesions on the nose or at the outer canthus. In such cases, one application, 50 per cent. in strength, applied for twenty-four hours, will effect a cure in many cases. It is a painful method, and there is considerable reaction which lasts for several days. In other cases, the curet is very satisfactory. The curettage should be done thoroughly and before the cautery or caustic is applied. Notwithstanding the theoretic objections this form of treatment is frequently the most satisfactory.

DR. GEORGE M. MACKEE, New York: The combined treatment with the Roentgen ray and the high frequency current has been very successful in some instances; in many cases more so than we could have hoped for from surgical intervention. Dr. Pfahler is right in saying that the effect is not selective, but is due to the very pronounced reaction and the coagulation of the blood in the adjacent vessels. Of course, there is no doubt that these results can be obtained, because we have seen them. My own experience with cases where deep therapy was required have not been so fortunate: while I had a few very good results, the majority were rather disappointing. I have been unable to duplicate Dr. Pfahler's results. It is possibly a question of technic. I have sufficient confidence in the method to warrant my resorting to it in cases where there is some reason why the patient should not be operated on. With sarcoma it is quite different. Here our results have been exceedingly good. We have had a very extensive experience with epithelioma of the lip. I never feel justified in applying the Roentgen ray to an epithelioma of the lip unless it is in the preepitheliomatous stage. In a case with induration and involvement of the glands, I would prefer to have the patient treated surgically, with radical excision of the lip and glands, followed by deep therapy, as outlined by Dr. Pfahler. In early cases of epithelioma of the lip, tongue or buccal mucous membrane, if superficial and without induration or palpable glands, then I believe we are quite justified in using either the Roentgen ray or radium. Even in these very mild cases I have seen a number of instances where an apparently brilliant result was followed by glandular metastases.

DR. WALTER IRWIN LEFEVRE, Cleveland: I have used the fulgurating current a great deal in the removal of superficial growths. In these cases a large electrode is held in the hand; the wire is applied directly to the part under treatment. The doctor speaks of using a machine capable of generating from 1,000 to 1,500 milliamperes, passing the current between the two poles, by introducing the needle on one side, with the ball electrode on the other. I would like to ask how much current the meter shows passing and if he judges the time necessary for the treatment by the appearance of the part. Also if he was treating a growth, located where this bipolar electrode method could not be applied, if he would use a large electrode in some remote part of the body, with the needle in the growth, the same way? In other words, is his electrocoagulation method the same as the fulgurating current?

DR. M. L. HEIDINGSFELD, Cincinnati: The difference of opinion expressed in reference to the origin of epithelioma from basal cells, while of a very decided nature, is at least honest and sincere in character. I, like Dr. Sutton, also have time and time again carefully examined thousands and thousands of sections in serial rotation without any material success, however, in casting the least light on the fundamental origin of skin cancer, particularly in regard to the ultimate derivation of these new growths from basal cells, hair follicles or sweat glands. When we realize that the emanating point must be a mass scarcely larger than a pin point and that this mass is transformed to a mass clinically much larger than a good sized pea before its true nature can be recognized, the utter hopelessness of establishing etiology by this method is readily apparent. Etiology must be conjectured and determined along entirely different lines. It is of some importance and at least of scientific interest to know from whence these new growths spring. If the basal celled epithelioma of Krompecher springs from the basal cells of the epidermis, we should at least see a fair degree of basal-cell epitheliomas springing from thoroughly cicatrized areas, following burns, injury, etc. That has not been in keeping with my personal experience. I am strongly opposed to the use of the curet in dealing with malignancy of the skin. I have never been a convert to its use and have observed nothing but unfortunate results when employed by others. I am also opposed to exploiting any new method of cancer treatment which has not been given thorough, careful and prolonged consideration and observation, not so much because new methods should be tried out thoroughly before being advocated, but because it gives a false sense of credulity and security and removes many patients from old, time-tried, successful and generally accepted methods. In other words, it offers uncertain for more or less certain results and the enforced procrastination may change a favorable condition to an unfavorable one.

DR. GEORGE E. PFAHLER, Philadelphia: The point I wish to emphasize is that these lesions, when they are in the precancerous stage, or in the early stage, can be destroyed

locally by electrocoagulation and deep roentgenotherapy. The superficial lesions are destroyed by means of a pointed electrode using a single pole, making use of the Oudin current. If the disease is deeper, and yet not massive, I make use of the active point electrode attached to the Oudin current, together with a large indifferent electrode applied to the body elsewhere, and attached to the d'Arsonval current. When you desire to destroy large growths (say the whole cheek or the lower lip), you can control the process much better by the bipolar method and cook it out just as thoroughly. I usually curet away the diseased tissue or cut it off with the scissors after it is coagulated but not before.

Dr. Frank Edward Simpson, Chicago: Those who are interested in radium therapy should not fail to read the reports issued by the London Radium Institute in the last three years. These reports give a very fair idea of what can be accomplished and the whole subject is touched on in a way that frees radium from much of the exaggeration from which it has suffered. The proper application of radium is almost a specialty in itself. I have seen many cases treated unsuccessfully where the quantity of radium employed was too small and then have seen these same cases yield to a sufficient dosage. Mistakes in methods of treatment are apt to be disastrous. No one can take up this treatment and within a few weeks or months expect to master the whole subject. The greatest care and skill are necessary in order to get the best results. Radium therapy is almost a specialty in itself.

Dr. Samuel E. Sweitzer, Minneapolis: In answer to Dr. Hazen I would say that the diagnosis of benign lymphoma occurred to me in connection with my case, but after a very careful study of it, I decided that it was one of leukemia cutis, particularly as the microscopic findings corresponded very closely to those described by Arndt. At any rate, it belongs to the leukemia group.

WEAKNESS OF THE SOFT PALATE AND OF THE TONGUE A CONSTANT SYMPTOM IN HEMIPLEGIA *

P. DE LONG, M.D.
AND
T. H. WEISENBURG, M.D.
PHILADELPHIA

The extent of the paralysis on one side of the body and the escape of certain movements in hemiplegia have always been interesting problems. The latter has always been explained by Broadbent's hypothesis that those muscles which act bilaterally are represented on both sides of the brain, and therefore a unilateral lesion at most could only produce a temporary paralysis.

At first it was supposed that most of the so-called bilaterally acting movements escaped in a cerebral hemiplegia. In this were included wrinkling of the forehead, moving of the eyeballs, the muscles involved in eating, talking, swallowing, chewing, and the muscles of respiration and of the abdomen. Gradually, however, this view has been modified until at present there are some neurologists who hold the opinion that in a cerebral hemiplegia there is a partial implication in all of the so-called bilaterally acting movements.

Weakness in the upper facial distribution in cerebral hemiplegia has been frequently noted. Mirallie,[1] for example, is of the opinion that in every case in which there is weakness of the lower facial muscles the upper facial is also affected, but to a less degree, while von Monakow[2] states that careful examination of the paralyzed side will reveal a delay in the closing of the eye and the wrinkling of the forehead, and that in fact every upper facial muscle has suffered a certain slight and transitory loss of power. We are able to add a rather interesting observation in regard to this point, for it can be accepted at once that stimulative experiments of the cortical facial center should give contributory results. One of us[3] for a long time has been studying nervous cases by the use of moving pictures. In a case of jacksonian convulsions in which the twitchings always started in the right corner of the mouth and extended to the right side of the face and upper limb, the upper facial distribution was alone involved in the beginning, and it was only later on in the convulsion that the left eyebrow also took part in the movement. In the same picture it has also seemed to us as if the right eyeball was jerked to the right much more than the left eyeball. It is to be remembered that the irritation was on the left side.

Mirallie and Desclaux[4] have attempted to show that in every case of cerebral hemiplegia in which the face is involved, all the muscles of the eye on the paralyzed side are affected to a greater or less degree. This view, however, has not been generally accepted. For example, S. A. K. Wilson,[5] comes to the opposite conclusion, and holds ocular movements are absolute in their bilateral representation and innervation.

The masseters, temporals and pterygoid muscles have, of course, been frequently found to be involved on the paralyzed side. The weakness of the tongue in hemiplegia is very well known. The weakness of the soft palate is mentioned, but the extent of its involvement is not of common knowledge. It has been usually accepted that the larynx is not implicated in hemiplegia, and yet in a careful survey of the literature we have been unable to find a really satisfactory work which proves this point.

Of the muscles of the neck, chest and abdomen, it is, of course, known that the platysma and abdominal muscles are weak in hemiplegia and that the muscles of respiration are undoubtedly affected.

The present investigation is concerned with the extent of the paralysis of the palate and tongue in cerebral hemiplegia.

Our results, in brief, show that in practically every hemiplegia in which there is facial involvement, the soft palate is either totally or partially weak on the paralyzed side. In fact, so impressed have we been with the consistency of this symptom that we are loath to accept the presence of a hemiplegia in the absence of a weakness of the palate on the paralyzed side. This is equally true of the tongue; but the weakness of this organ is not so readily shown as that of the palate, and therefore as a constant symptom it does not have the importance of the former.

We investigated in round numbers 100 cases of hemiplegia, all of these being either in the nervous wards or the out-wards of the Philadelphia General Hospital. Besides, we studied a number of cases of diplegia and pseudobulbar palsy. Of the hemiplegics, in every instance in which we obtained a good view, there was found to be weakness of the soft palate.

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* Read before the Section on Nervous and Mental Diseases at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

1. Mirallie: Arch. de neurol., 1899, p. 1 et seq.
2. Von Monakow: Gehirnpathologie, p. 288.
3. Weisenburg, T. H.: Moving Picture Illustrations in Medicine, The Journal A. M. A., Dec. 28, 1912, p. 2310.
4. Mirallie and Desclaux: Rev. neurol., 1903, p. 649. Desclaux: Thèse de Paris, 1903.
5. Wilson, S. A. K.: Rev. Neurol. and Psychiat., 1904, p. 265.

In a normal individual with the mouth open and in quiet breathing, the uvula generally points to the middle, and the palate and its arches have a uniform outline. In a hemiplegia, however, according to our investigations, in about 80 per cent. of the cases, the uvula generally points away from the paralyzed to the normal side, and the palatine arch, because of the relaxation or loss of tone of the muscle, loses its normal concavity and appears flatter and wider. In ten out of the hundred the arch appears to be narrower on the paralyzed side. But in these the weakness of the palate can be readily determined in phonation. Even in these cases, however, in comparison with the normal side, the palate always appears ironed out or flat. In the other ten patients we were unable to obtain a satisfactory view because of physical reasons.

When, however, the soft palate is put in motion by saying "ah," the weakness of the palate is at once apparent. Instead of the normal contraction, the response of the arch on the paralyzed side is slower, and what can be best described as the giving way or the relaxation of the palate is greater and in a direction backward and toward the normal side, as if the normal palate exerted its influence by drawing the back part of the paralyzed muscle toward it. There is, of course, a variation in the extent of the palate weakness; but some involvement is found in every case.

Tetzner,[6] in 1909, also studied the extent of the soft palate involvement in hemiplegics, and divided his cases into four groups. In a certain number he was unable to get a view of the palate. In the second group the soft palate was so completely paralyzed that it moved very little. In the third group the soft palate did not move in phonation, but did move symmetrically in gagging, while in the last group in phonation there was undoubted movement of the soft palate, as in fifty-two cases of cerebral hemiplegia he found that in forty, or 77 per cent., there was a drawing of the soft palate upward and *toward* the paralyzed side. In eleven of these cases the soft palate acted symmetrically.

These observations coincide very much with ours in the sense that the author found in most instances a weakness of the palate in phonation; but while he states that the movement of the palate is backward and toward the paralyzed side, our observation is that the movement is backward and toward the healthy side, quite the opposite conclusion. With the knowledge of Tetzner's observations, we have repeatedly proved to ourselves that our views are correct. Besides, in our study we observed the condition of the palate at rest, to which Tetzner paid no attention.

An interesting contribution to this subject, which establishes that our view is correct, is that by Horsley and Beevor,[7] who in their experiments found that with minimal electrical stimulation of the cortex of one hemisphere, elevation of the soft palate toward the opposite side could be obtained more frequently than bilateral elevation of the palate. It follows, then, that if stimulative experiment produces an elevation toward the opposite side, paralysis will cause a movement of the palate toward the sound side.

WEAKNESS OF THE TONGUE

The weakness of the tongue in hemiplegia is, of course, very well known. The generally accepted view is that in a right hemiplegia, for example, the tongue deviates to the right or the paralyzed side, because of the unaffected action of the normal muscle. The extent of this paralysis varies, and is generally most marked directly after a hemiplegia, and gradually disappears; but in some cases this weakness is always apparent. Beevor[8] investigated the tongue in hemiplegia. He was particularly concerned with the fact that the tongue moved to the paralyzed side, not only in a paralytic condition, but also as a result of a cortical irritation. He explained this phenomenon by the fact that the cortex revealed that there are two centers for the movements of the tongue, one in the upper part of the tongue area which caused deflection toward the opposite side, and another situated lower and more anteriorly, stimulation of which caused protrusion of the tongue in midline. The latter affects equally the movements on the two sides of the tongue, and it is the disturbance of this movement which causes the flexion of the tongue toward the hemiplegic side, and not the voluntary movement of turning the tongue toward that side. The latter is a unilateral movement, and Beevor has shown that it is affected in hemiplegia, the patient having more difficulty in putting the tongue into the cheek on the paralyzed side than in moving it in the opposite direction.

In our investigation we studied the position of the tongue when lying in its cavity, and its action when protruded. The extent of the weakness on the paralyzed side was generally commensurate with the extent of the palatine involvement. In almost every case the tongue was flabby to touch and pressure as compared with the normal side. When lying in its cavity, especially in its posterior part, it appeared higher and thicker, and its width was less. This was especially brought out when the tongue was protruded. In about 25 per cent. of the cases no change was found in the circumference of the tongue when at rest, while in a few, about 5 per cent., the tongue appeared smaller on the paralyzed side. When protruded, especially in early cases, the tongue moved to the side of the paralysis; but what was most apparent was the greater convexity or thickness and lessening of the width, especially in its posterior part.

Our investigations of the palate and tongue in diplegia were not productive, chiefly because of the lack of comparison with the normal.

In pseudobulbar palsy, our findings were practically those in hemiplegia; for in the majority of cases of pseudobulbar palsy, one side is always more involved than the other. In a few instances, especially in one case in which the bulbar symptoms were most marked, there was not the slightest doubt about the weakness of the soft palate. The tongue movements in pseudobulbar palsy are always limited, and the lack of tone noticed in hemiplegics is easily apparent.

CONCLUSIONS

1. In all hemiplegics in who mthere is an involvement of the lower part of the face, there is also weakness of the soft palate. This can be seen with the mouth open, with the palate at rest and in phonation. When at rest the arch of the palate is flatter and broader than that on the normal side. In phonation the soft palate on the paralyzed side appears to give way and the arch of the palate goes back and toward the normal side.

6. Tetzner: Neurol. Centralbl., 1909, p. 520.
7. Horsley and Beevor: Phil. Tr. Roy. Soc., 1894, clxxxviii, 62.
8. Beevor: Brain, 1906, p. 487.

2. In hemiplegics in whom the lower part of the face is involved, the tongue on the paralyzed side loses its elasticity, and is flabby to touch and pressure. When lying in its cavity, the posterior part especially appears to be thicker and not as wide in comparison to the normal side, this being especially brought out when the tongue is protruded.

1909 Chestnut Street.

ABSTRACT OF DISCUSSION

Dr. Francis X. Dercum, Philadelphia: In an organic hemiplegia involving the leg, arm and face of one side, the tongue, when protruded, deviates toward the paralyzed side. In a hysterical hemiplegia it deviates toward the sound side. The physical character of the tongue as it rests on the floor of the mouth in organic hemiplegia, as well as the condition of the soft palate and half arches, furnishes additional points of value in the further differentiation between an organic and a functional hemiplegia.

Dr. Walter Timme, New York: In phonation or in an attempt by the patient to move the soft palate, in which direction is his uvula carried—toward the paralyzed or the sound side? It is my experience that the large majority, in contradistinction to Dr. Weisenburg's findings, move to the nonparalyzed side of phonation.

Dr. George A. Moleen, Denver: One might say that in the examination of cases of hemiplegia the observation of palate and tongue is a routine. I have often, however, been struck by the point referred to by Dr. Weisenburg, that cases which eventually prove not due to destructive lesions were associated with diminished or slightly perceptible deviation of the tongue, and likewise the palate was little influenced, while in cases of organic hemiplegia, ordinarily the palate in phonation is found drawn to the opposite side.

Dr. J. Ramsay Hunt, New York: Were these observations made in old or recent cases?

Dr. Theodore H. Weisenburg, Philadelphia: We found that in hemiplegia the uvula points to the paralyzed side in phonation. Our cases were mostly old. In new cases the palate symptoms are much more marked than in older cases. So common has been the weakness of the palate that I would doubt the presence of hemiplegia without it.

Unsuspected Hernia as Cause for Infant's Crying.—M. Vargas of Barcelona in his "Pediatrics," 1915, relates a number of instances in which nothing could be found to explain the infant's constant crying until a tendency to inguinal hernia was detected. When the hernia occurs easily, through a wide passage, there is no pain, and the hernia is readily reduced, as a rule. The painful and often ignored form is when the passage is small and the intestine protrudes little, if at all, so that the hernia escapes detection unless the physician is on the alert to find it. The child keeps up its crying incessantly in these cases until the hernia is reduced and held in place with adhesive plaster, when relief and smiles follow at once.

LOCAL REACTIONS OF THE PASTEUR TREATMENT AND THEIR TIME OF APPEARANCE

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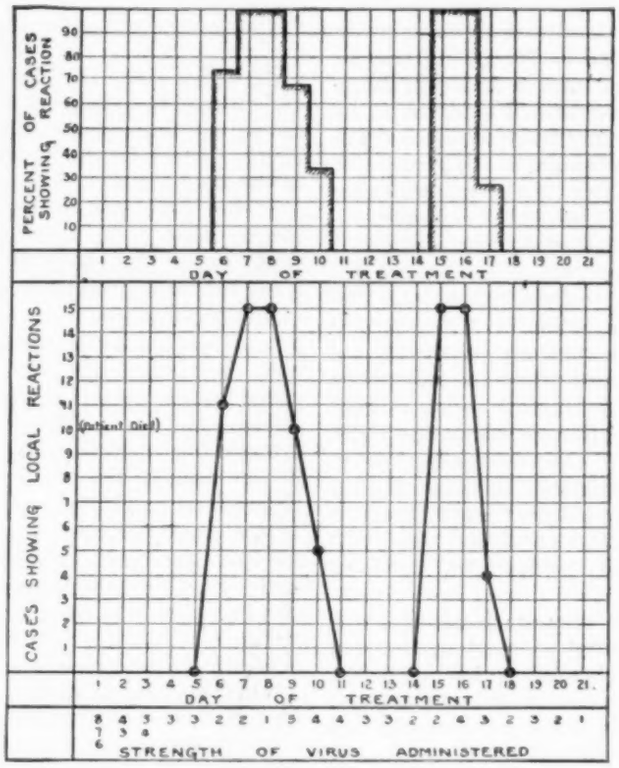
BERKELEY, CALIF.

Textbooks and many writers describe a local reaction of the tissues at the site of injection occurring during the course of the administration of the classical Pasteur treatment. All agree in the general description of this reaction, namely, a slightly raised edematous area with erythema, accompanied usually by itching, pain and tenderness, and sometimes with malaise and rise of temperature.

The time of appearance of these reactions has been variously given. An attempt here is made to demonstrate by chart, in a series of fifteen cases, the strength of the virus given, the percentage of cases showing reactions, and the day of the treatment on which the reactions occurred. In only one case in a series of 641 did these reactions occur daily. Again, in only one case of this series could the reactions be considered absent. In one case, in which a paralysis occurred, as a complication of the Pasteur treatment, there was noted a flaring up of all the reactions with a sharp rise in temperature simultaneously with the beginning of definite symptoms of the involvement of the nervous system.



Time of local reactions in Pasteur treatment.

That these reactions are manifestations of hypersensitiveness of the individual to the nerve tissue injected is probably true. That the rise of reactions occurs after the injection of virus of high potency is suggestive. That they have any relation to immunity cannot be considered because of their occurrence in fatal cases, these cases being true failures of the Pasteur treatment. It is interesting to note, in the chart, the universal appearance of the reactions on the seventh and eighth days of treatment, and the second rise, occurring on the fifteenth and sixteenth days, this being less in extent. A search of the literature has failed to reveal the mentioning of this second definite rise in the reactions, as in the series recorded here and also noted in the majority of the 641 cases treated. Whether this decidedly modified reaction is due to a protein of another character cannot be definitely stated. The largest reaction noted was approximately 10 by 12 cm. in diameter.

THE CLINICAL VALUE OF COMPLEMENT FIXATION IN TUBERCULOSIS *

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It is well known that in most bacterial diseases the body reacts by the formation of antibodies, and that when this phenomenon takes place the presence of these antibodies can be detected in vitro by a number of different methods, all of which depend on the observation of the reaction which occurs between the serum of the subject and the antigen prepared from the body constituents of the inciting micro-organisms; such are the agglutination reaction, the precipitin reaction, and, perhaps most important of all, the various methods of complement fixation. The demonstration of antibodies in the circulating blood has been accomplished and successfully applied to the diagnosis and prognosis of tuberculosis. Since 1903, beginning with the researches of Bordet and Gengou,[1] many workers have repeatedly noted the presence of antibodies in the blood of tuberculous patients, demonstrating them by the method of complement fixation with antigens derived from the tubercle bacillus. Wassermann and Bruck,[2] and then Citron[3] were among the early investigators who amplified this work. Because of technical difficulties, however, results in tuberculosis long proved irregular and unreliable. Nevertheless enough was done to indicate that with proper improvements in methods the fixation reaction would probably be available for the diagnosis and the clinical control of this disease in its prognosis and treatment.

The various other laboratory tests proposed for the early diagnosis of tuberculosis have served their purpose only to a limited degree.[4] Tuberculin reactions, particularly, seemed to offer help as diagnostic measures until it was demonstrated that their great delicacy impaired the usefulness of most of them. The skin reaction has lost much of its clinical significance because nearly all adults react positively. These tests denote a hypersusceptibility of the patient to the tubercle bacillus, and this state may exist whether the lesion is active or inactive; they are thus not an indicator of the activity of the disease. Extensive clinical observation has finally limited the value of skin tests chiefly to cases occurring in infants and in young children.

Equally unreliable have been the urochromogen test, albumin estimations of the sputum by various processes, the interpretation of the Arneth leukocyte count, agglutination reactions as carried out by Arloing and Courmont, etc. It is apparent, therefore, that specific diagnostic measures for tuberculosis, as generally in use at present, have proved inadequate.

Granted that the circulating blood of tuberculous patients contains specific antibodies, the chief difficulty with which all experimenters have been forced to contend has been the production of a suitable antigen. A suitable antigen in this sense would be represented by a preparation of tubercle bacillus constituents which, together with the serum of tuberculous animals or man, would specifically fix complement and would fail to show fixation in reasonable multiples either by itself, with normal serums, or with the serums of patients suffering from other diseases.

Elsewhere I have reviewed the literature on complement fixation in tuberculosis,[5] and have pointed out the great variety and large number of antigens which have been proposed. The subject has received sporadic study during the last decade, but within the past few years interest in the problem has been especially stimulated by the promising results published by Besredka[6] and by those who employed the Besredka antigen[7] and modifications of it (Inman,[8] Debains and Jupille,[9] Renaux,[10] Bronfenbrenner[11] and Craig[12]). Calmette[13] devised a watery peptone extract of the bacilli. McIntosh and Fildes,[14] Dudgeon, Meek and Weir,[15] and Radcliffe[16] used bacillary suspensions. Finally Petroff[17] employed, with good results, a filtrate of cultures on glycerin-potato broth.

From the statements of these workers, it became evident that many different antigens may yield results appreciably better than those obtained in the early investigations. A careful study of these later antigens, however, failed to eliminate a considerable margin of error. Besredka obtained a high percentage of positive fixation in positive cases, but he found, not infrequently, complete binding with the serums of normal and syphilitic patients. Obviously, this nonspecific cross fixation diminishes the reliability of Besredka's antigen. Bronfenbrenner, in spite of extracting lipins or precipitating and obtaining the protein constituents in pure form, could not avoid nonspecific cross fixation. In his latest report, Bronfenbrenner,[18] with his collaborators, stated that the reaction is positive in a certain number of clinically nontuberculous and in 20 per cent. of syphilitic cases. He holds that syphilis and tuberculosis occur in the same patient more often than has been heretofore suspected, and that the 20 per cent. of syphilitics with positive tuberculosis reactions probably have tuberculosis though no clinical evidence is present. Craig extracted the Besredka egg broth, together with its bacterial growth with alcohol, and procured a filtrate which gave no cross fixation with nontuberculous and syphilitic serums but gave positive reactions in 66.1 per cent. of clinically inactive cases. Though at variance with the clinical findings, Craig claims that the fixation test may be the more reliable guide to activity in these arrested cases. Petroff's data show cross fixation. Calmette's antigen gave a maximum number of positive fixations in moderately advanced pulmonary cases, but did not serve as a reliable test in the other stages of pulmonary and other forms of tuberculosis. With the bacillary suspensions the English writers obtained good results; but here also the number of inactive cases with positive fixation justified the belief that this test thus far offered little advantage over the tuberculin procedures, since 74 per

* From the Department of Bacteriology, Columbia University, College of Physicians and Surgeons.

1. Bordet and Gengou: Compt. rend. Soc. de biol., 1903, cxxxvii, 351.
2. Wassermann and Bruck: Deutsch. med. Wchnschr., 1906, xxxii, 449.
3. Citron: Berl. klin. Wchnschr., 1907, p. 1135.
4. Kahn: Jour. Lab. and Clin. Med., May, 1916, p. 599.
5. Miller, H. R.: Jour. Lab. and Clin. Med., August, 1916.
6. Besredka: Ztschr. f. Immunitätsforsch., 1914.
7. The Besredka antigen consists of the filtrate of an egg-meat-broth medium on which tubercle bacilli have been allowed to grow for several weeks.
8. Inman: Compt. rend. Soc. de biol., 1914, lxxvi, 251.
9. Debains and Jupille: Compt. rend. Soc. de biol., 1914, lxxvi, 199.
10. Renaux: Compt. rend. Soc. de biol., 1914, lxxvi, 864.
11. Bronfenbrenner, J.: The Complement Deviation Test with Besredka's Tuberculin and the Occurrence of Tuberculosis Among Syphilitics as Diagnosed by This Test, Arch. Int. Med., December, 1913, p. 786.
12. Craig: Am. Jour. Med. Sc., December, 1915, p. 781.
13. Calmette and Massol: Comp. rend. Soc. de biol., 1912, lxxiii, 120.
14. McIntosh and Fildes: Lancet, London, 1914, ii, 485.
15. Dudgeon, Meek and Weir: Jour. Hyg., 1914, xiv, 72.
16. Radcliffe: Jour. Hyg., 1915, v, 36.
17. Petroff: Personal communication to the author.
18. Bronfenbrenner, J.; Kahn, M. H.; Rockman, J., and Kahn, Max: Further Studies of Biologic Methods for the Diagnosis of Tuberculosis, Arch. Int. Med., April, 1916, p. 492.

cent. of the cases with quiescent lesions gave positive reactions.

Thus the work of Besredka and his followers, of Petroff, of Calmette, of McIntosh and Fildes, and of Radcliffe, indicates the regularity with which the test may give positive results in clinically active cases, but in general has not succeeded in determining the activity of the tuberculous process, since serums of many arrested patients and at times the serums of normal, nontuberculous and syphilitic cases reacted positively. The possibility that these patients, nearly all of whom failed to show evidence of the disease, were nevertheless harboring active lesions seems remote and directly opposed to clinical experience.

To be of any real value to clinicians, tests of this kind should either differentiate between arrested and active cases or should, at least, give regularly negative results in other disease and in normal cases. The latter standard seems to have been satisfied by McIntosh, Radcliffe and others, with suspensions of the bacilli, but the work did not serve to distinguish active from arrested lesions. It seemed reasonable to hope that the laboratory findings would agree more fully with clinical data.

In previous communications, Miller and Zinsser[19] described a simple antigen prepared by grinding living or dead tubercle bacilli with dry table salt, and then adding distilled water up to isotonicity. This salt extraction of tubercle bacilli has served as excellent antigen. Its detailed description has been published. At present we desire to report the results of 1,012 cases tested with this antigen.

The serums of the majority of the first three or four hundred cases examined reached the laboratory with no data whatsoever and were identified by number; later the clinical observations in these cases were compared with the serologic result, and practically no disagreements noted. This encouraged the belief that we were dealing with a specific reaction, and a more intensive study of this antigen was undertaken. The accompanying table illustrates the results.

The small but important group of eight incipient cases deserves special scrutiny. These were all very early cases, running a slight febrile course. In one instance the condition was considered malaria, in another the diagnosis was gastritis, in a third exophthalmic goiter and in the rest bronchitis. All showed few or vague pulmonary signs. There was no expectoration of sputum in any of these. The fixation test was positive in all of them. Twenty-seven active pulmonary "Stage I" cases with positive sputum gave positive reactions, while seven additional active "Stage I" patients with no bacilli in the sputum were also active.

Of 128 "Stage II" cases, ninety with positive sputum, all but four were positive. One hundred and fourteen "Stage III" patients, eighty-nine with positive sputum, gave positive reactions in 109; one negative result was obtained in a patient who had a very advanced lesion; the other four negative reactions occurred in moderately advanced cases.

We have, then, the serums of 284 clinically active patients in whom the reaction was positive in 275.

There were 113 inactive or arrested cases. The largest number had been arrested for a period of years; some, however, were classed as inactive by clinicians from various institutions, when the disease was clinically quiescent for short intervals of from four to five months. Every patient had had tuberculosis at some time, but no case was placed in this group that showed any physical signs or symptoms of activity. The von Pirquet test was performed in twenty-three in this series. It was positive in nineteen and negative in four; in all of these fixation was negative. Among the 113 cases, seven had tubercle bacilli in their sputum shortly before the fixation test was done; of these seven cases two gave strong positive fixation, and the other five were negative. The clinical picture of these five inactive cases with positive sputum corroborates the serologic observation that when there is no antibody in the blood, and in spite of bacillary positive sputum, the patients are not to be considered as suffering from tuberculosis. They are in effect tubercle bacillus carriers. The other 106 cases gave negative reactions in ninety-eight and positive reactions in eight.

RESULTS OF ONE THOUSAND CASES TESTED WITH SALT EXTRACTION OF TUBERCLE BACILLI

Total	Diagnosis	Sputum		Result		
		Positive	Negative	Positive	Negative	Suspicious
284	Active pulmonary:					
	Incipient 8	..	8	8	..	..
	Stage I 34	27	7	34	..	..
	Stage II 128	90	38	124	4	..
	Stage III 114	89	25	109	5	..
113	Inactive pulmonary	7*	106	10	103	..
228	Doubtful cases:					
	Pulmonary (148):					
	Pleural 21	..	21	3	17	1
	Emphysema, Asthma, Bronchitis 11	..	11	1	10	..
	Postlobar pneumonia 5	..	5	..	5	..
	Spontan. pneumothorax 1	..	1	..	1	..
	Hydrothorax 1	..	1	..	1	..
	Miscellaneous 109	..	109	16	93	..
	Eye cases 28	..	..	1	25	2
	Bone and joint 17	..	..	5	11	1
	Gland cases 11	..	..	3	8	..
	Ascites 5	..	..	2	3	..
	Genito-urinary 11	..	..	4	7	..
	"Exposures" 3	..	..	..	3	..
	Tuberculous meningitis 5	..	..	4	1	..
144	Nontuberculous serums	..	..	..	144	..
243	Positive Wassermann serums	..	..	7	236	..
1012						

* Of the 7 patients with positive sputum 5 gave negative fixation.

Summarizing this important group of inactive cases we observe that, out of a total of 113 patients examined, 103 gave negative reactions while ten showed fixation. The von Pirquet test was not paralleled by the fixation reaction. There seems to be a type of patient that may be termed a "tubercle bacillus carrier," manifesting no activity clinically and with no evidence in his blood of adsorption from an active process. As a rule, the fixation test in inactive or arrested tuberculosis is negative.

The serums of 228 doubtful patients were tested.

Twenty-one had pleural involvement, mostly of an acute nature, with fluid well marked. The results were: positive fixation in three, suspicious reaction in one, and negative in seventeen.

Eleven patients with various nontuberculous pulmonary conditions, as emphysema, bronchitis and asthma, were all negative except one in whom roentgenoscopy revealed diffuse lung shadows and in whom active tuberculosis was probable. Five postlobar pneumonias, one hydrothorax and one spontaneous pneumothorax of unknown origin were negative.

19. Miller and Zinsser: Tr. New York Path. Soc., Feb. 7, 1916; Am. Jour. Med. Sc., to be published; Proc. Soc. Exper. Biol. and Med., 1916, xiii, 134.

One hundred and nine additional cases were examined, the signs and symptoms being suspicious but not conclusive of tuberculosis. Here the reaction was negative in ninety-three and positive in sixteen. Subsequently the clinical diagnosis of tuberculosis was established in some of these sixteen positively reacting patients. In no inactive cases so far has there been discovered any evidence of an active lesion. We have, then, out of 148 pulmonary conditions of doubtful nature so far as tuberculosis is concerned, 127 cases with negative, one with suspicious and twenty with positive results.

Twenty-eight eye cases gave negative reaction in twenty-five, positive in one, and suspicious in two.

In seventeen bone and joint conditions, five were clinically tuberculous. The reaction was positive in these five. A guinea-pig inoculated with tissue from one of these cases developed tuberculosis several weeks after the serum test had been reported; the reaction was negative in eleven cases and suspicious in one.

Eleven glandular cases were examined. Three were positive; in one of these three the clinical diagnosis of Hodgkin's disease was disproved at the pathologic examination of an excised lymph node, when tuberculosis was found. The other eight glandular cases were negative.

Of five cases of ascites, three were clinically polyserositis with negative Wassermann reactions; fixation was positive in one of these three; a fourth was a case of splenomegaly with negative Wassermann and negative tuberculosis reaction, and the last, a case of tuberculous peritonitis with the Wassermann reaction positive, in which tuberculosis of the peritoneum was found on exploratory laparotomy.

Of eleven genito-urinary cases, four were positive and showed renal tuberculosis at operation; seven cases were doubtful clinically and negative to the test; in one case a tuberculous kidney had been removed but there was a persistent tuberculous sinus. In this case the test was negative.

The only three cases of "exposures" examined were negative.

The spinal fluid from four cases with proved tuberculous meningitis gave positive fixation in three cases and negative in one. One case for diagnosis reacted positively. This patient died with the clinical picture of tuberculous meningitis. No necropsy was obtained.

For controls, 144 negative cases were secured. Eight were normal patients; the rest had trivial complaints or diseases in which tuberculosis was well excluded. The fixation test was negative in all. Twenty-six received tuberculin intradermically and the skin reaction was positive in twenty-four and very marked in a few. Yet the serums of these twenty-four were negative with the fixation reaction.

Two hundred and forty-three Wassermann serums gave negative reactions in all but seven cases. One of these seven was the patient with tuberculous peritonitis already mentioned, who had syphilis and whose peritoneum showed tuberculosis at operation. One patient under Dr. Alfred Meyer's observation also had syphilis, and the Roentgen ray showed definite lung signs. Another case (G. G.) was repeatedly positive by the fixation test. Five weeks after our last report Dr. Smith of the Presbyterian Hospital reported that roentgenoscopy revealed consolidation in the lungs, and that there were signs of activity on auscultation. In three cases from a series of 198 positive Wassermann serums obtained from the New York Department of Health[20] the doctor in charge diagnosed tuberculosis in two, but could establish no diagnosis of syphilis or tuberculosis in the second. The final patient (J. O.) who gave positive fixation with both antigens cannot be reached for further investigation.

It would needlessly encumber this paper to detail the histories of the cases tabulated. At the outset the work was limited to the examination of pulmonary cases. The results showed a remarkable regularity in that active tuberculosis only gave positive fixation while controls were invariably negative. Subsequently inactive and syphilitic serums were examined, and in addition a large series of reactions were done on nontuberculous patients and in cases in which clinical history and signs pointed to the possibility of tubercle bacillus infection. Where there were apparent discrepancies between clinical and laboratory findings, later details, in almost all instances, upheld the serologic results. In a group of children from 1 to 15 years old, the reaction was equally reliable in differentiating the clinically active cases from all others. Here, too, the von Pirquet test did not, in all cases, coincide with the fixation reaction.

CONCLUSIONS

We have, then, in the complement fixation reaction, a method for the detection of active tuberculosis.

1. The reaction is practically always positive in active tuberculosis: 284 pulmonary cases: positive in 275, negative in nine.

2. Nontuberculous and normal patients react negatively: 144 cases: all negative.

3. The serums of syphilitics who have no clinically active tuberculosis are negative. Two hundred and forty-three positive Wassermann cases were all negative except seven, and in these seven tuberculosis was established in five cases and was not excluded in the other two.

4. The test is, as a rule, negative in arrested cases. Of 113 serums tested, 103 were negative and ten positive.

5. The von Pirquet and intradermic tuberculin tests and the complement fixation reaction are not identical or similar diagnostic procedures, since the former indicates the existence of a tuberculous lesion whether old and arrested or active, while the latter points clearly to the presence of some active focus.

6. There is evidence to believe that there exists a group of tubercle bacillus carriers who have no manifestations of clinical activity and whose serums contain no antibodies, and yet discharge tubercle bacilli in their sputum.

7. The presence of tubercle bacilli in the sputum is not an absolute guarantee of the activity of the pulmonary tuberculosis.

We feel reasonably justified, therefore, in assuming that the complement fixation test with our antigen may be of distinct aid in the diagnosis of early tuberculosis and in the detection of the disease when the condition is obscure. The test should offer a wide field of usefulness in prognosis, since the reaction loses its intensity of fixation as the patient progresses toward recovery. Lastly, in the fixation test the practitioner will have at his disposal a measure for the control of tuberculosis in institutional and private life.

150 West Eightieth Street.

20. For the privilege of studying these serums I am indebted to Mr. Coopman.

EPIDEMICS OF PEMPHIGUS NEONATORUM IN CHICAGO

PRELIMINARY REPORT *

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CHICAGO

Eight small epidemics of pemphigus neonatorum have occurred in Chicago within the last year. The disease is an epidemic staphylococcic vesicular dermatitis occurring usually in new-born babies from the fourth to the fourteenth day, but capable of being transmitted to older children and adults. The exciting organism is a peculiar strain of staphylococcus which is biologically and tinctorially indistinguishable from other strains of staphylococcus, but which shows characteristic pathogenic tendencies when causing the specific disease on the human skin. Morphologically on some mediums (broth and milk) it differs from the ordinary staphylococcus in that it appears as a kidney-shaped diplococcus with a tendency to form short chains. I have cultivated this organism in pure culture from the lesions, and it has fulfilled all of Koch's laws with respect to the disease. It is pathogenic for the lower animals, killing guinea-pigs and rabbits on intraperitoneal, subcutaneous and intravenous injections in less than a week. The typical vesicular eruption, however, could not be reproduced in these animals. An abortive lesion was produced in a monkey. A typical lesion was produced on my arm from a broth culture of the organism, and the organism was recovered from the experimental lesion in pure culture.

The onset of the disease is usually from the fourth to the tenth day. A reddened area of hyperemia first appears, which becomes whitened in the center in a few hours, followed by a raising of the epidermis into a thin walled, wrinkled vesicle containing a clear, yellowish fluid. Later this fluid becomes turbid. Smears from this show pus cells with intracellular and extracellular diplococci, which in these preparations resemble the gonococci very closely, but differ in that they are gram-positive. The vesicles spread rapidly by peripheral extension, and in severe cases may coalesce to form large areas from which the superficial epidermis has been lifted off, leaving a raw, weeping, hyperemic base.

There is, as a rule, no rise in temperature or increase in pulse rate. The babies eat and sleep well and gain in weight, and there seems to be little if any subjective sensation produced by the lesions. Fatal cases, however, occur associated with all the signs of a severe septicemia. In most of the reported cases of this type, skin lesions were present in the region of the umbilicus. The infection in these cases, therefore, probably spreads by way of the umbilical vessels.

The disease is highly contagious, and can be transmitted through the medium of a third party, who is not infected, but who has come in contact with patients having the disease. No cases have been reported in babies who have not been exposed directly or indirectly to the cases developing in the hospital epidemics.

Prompt isolation of patients with quarantine of the obstetric wards until the last patient has left the hospital, followed by thorough fumigation and painting or calcimining the infected wards and sterilizing material that has been exposed to the disease, appears to be the only efficient means of stamping out the infection. While in the hospitals, patients should have special nurses and separate equipment for their care. An efficient method of treating the lesions is to rupture the vesicle as soon as it forms and to apply 2 per cent. ointment of ammoniated mercury (white precipitate ointment) to the lesion. Prophylactic and curative vaccines in doses of 15 millions are being tried, but their use is too limited as yet to permit one to draw conclusions as to their value in preventing or effecting a cure of the disease.

The epidemics have occurred at the West Side Hospital, the University Hospital, Cook County Hospital, St. Luke's Hospital, Michael Reese Hospital, Chicago Lying-In Hospital, Englewood Hospital, and the Monroe Street Hospital. Nearly a hundred cases have been observed with at least four deaths.

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CHLOROFORM IN STATUS EPILEPTICUS

WITH REPORT OF CASES

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By status epilepticus, reference is made to that condition of epilepsy which is characterized by epileptic seizures following so close one on the other that before the patient finds himself out of one convulsion the successive attack appears, and so on until death, unless by some means they are arrested.

At the New Jersey State Village for Epileptics, I made a study of the treatment of status epilepticus in cases selected from the children's division. All patients who had status epilepticus were studied. The study was made between March 1 and Dec. 1, 1915.

Prior to this study, the treatment of the status epilepticus cases was with purgation and high colon flushes, large quantities of water being used long after the colon had been cleansed. When necessary, relaxation was produced with chloroform to the state of primary and sometimes of complete anesthesia, and bromids and chloral hydrate were occasionally used during the intervals.

The present study was made to ascertain which of these remedies was the most potent, or whether all together gave the results. The study was divided into first, second and third parts, the first part to cover the first three months, the second part the second three months, and the third part the last three months. The plan of study pursued was the use in the first part of high colonic irrigation with saline purgation and to avoid the use of chloroform. In the second part the same procedure was to be followed, but chloroform anesthesia was used whenever the enemas and purgation failed. In the third part chloroform anesthesia was used alone and as soon as the physician arrived. As will be observed throughout the report, an absolute adherence to this plan was not possible owing to the frequency with which the patient's condition demanded a slight variation of the treatment.

All of the patients except Case 7 at the beginning of the study were placed on fluidextract of cascara sagrada each day at bedtime, and a saline purgative or castor oil was administered about every ten days.

The following case reports will show the results:

CASE 1.—*History.*—B. C., girl, aged 12, in whom the first convulsion occurred at 5 months, exciting cause not known,

had a neurotic hereditary taint. The Binet-Simon test gave the mental age as 4.8 years. The patient had been having status epilepticus on an average about once every three to five weeks. The status was usually preceded by violent pain in the back.

First and Second Parts.—Three status attacks occurred approximately on an average of four weeks apart, and were treated in the beginning with high colon irrigation. In the first status, no chloroform was administered; during the second and third, owing to the patient's becoming very much exhausted, enough chloroform was given for relaxation.

Third Part.—The last three months, as soon as the physician arrived at the bedside, chloroform was administered, which each time arrested the seizures with the same good after-results as when high enemas were used. Just enough chloroform was inhaled to relax the patient, at which time she would go to sleep and after a few hours awaken in her usual condition.

CASE 2.—*History.*—E. P., girl, aged 17, whose first convulsion occurred at 10 years, the exciting cause being indigestion, carried an epileptic hereditary taint and tested 2.6 years by the Binet-Simon scale. This patient had been having status about every four to five weeks.

First and Second Parts.—This study of the patient shows that from the first convulsions she recovered without the use of chloroform, but during the second and third it was necessary as a last resort. This patient always vomited shortly after the administration of chloroform, which seemed to relieve her and showed an overloaded condition of the stomach. After relaxation with chloroform she would have two or four convulsions within the next twelve hours, which were all except an occasional one until the next status.

Third Part.—The next four status convulsions were treated without enemas and chloroform was administered immediately on the arrival of the physician, which arrested convulsions with the same results as when the enemas were used in conjunction with the anesthesia.

CASE 3.—*History.*—M. R., girl, aged 14, whose first convulsion occurred at 5 years and was attributed to teething, had both a maternal and a paternal neurotic taint, and stood one-plus results by the Binet-Simon scale. She had status epilepticus every one to three months.

First Part.—Two attacks occurred, and it was necessary to administer chloroform in both attacks, which came on two months apart. Both times the patient became very cyanosed, and as soon as the chloroform was administered began to breathe easier and soon completely relaxed, without recurrence of convulsions. Each time she had a great deal of bronchial secretions, and the pulse became rapid and weak, which condition was relieved by atropin.

Second Part.—It was quite evident that the longer the chloroform was withheld the more chloroform it took to relax the patient.

Third Part.—The chloroform was administered at once and the patient relaxed early. The after-effects were very much diminished in that the patient was able to be up and about much earlier.

CASE 4.—*History.*—A. M., girl, aged 11, whose first attack occurred at the age of 3 years, exciting cause unknown, was epileptic because of a defective germ plasm carrying a maternal epileptic and a paternal feebleminded taint. The Binet-Simon test gave a mental age of 3.9.

First and Second Parts.—In the first attack, chloroform was not administered. The second attack was very severe, and colon flushes and chloroform would relax her for only a few minutes, sometimes as long as an hour, and then there would be a recurrence of the convulsions. This state of affairs lasted for about forty-eight hours, when the convulsions became arrested. During the time, bromids, chloral and morphin had been administered. The patient was in bed several weeks following this attack of status.

Third Part.—In this part, chloroform was administered immediately on the beginning of the status, which arrested the convulsions without any of the former symptoms.

CASE 5.—*History.*—M. C., girl, aged 10, whose first convulsion occurred at 8 months, exciting cause not known, had the hereditary taint of alcoholism on both sides of the house. The Binet-Simon test gave the mental age at 2 years.

First and Second Parts.—In this part of the treatment, chloroform was administered in only one out of three status attacks. There was apparently no difference in the recovery of any of the three attacks. There were one or two convulsions during the first twelve hours following the arrest of the status. The patient was able to be in her usual condition the following day.

Third Part.—This part of the treatment with the immediate use of chloroform showed an early arrest of the convulsions with the same after-effects as in the first and second parts.

CASE 6.—*History.*—L. T., boy, aged 12, whose first convulsion occurred at 18 months, exciting cause unknown, had no hereditary taint which had been ascertained. The Binet-Simon test gave the mental age as 2.5 years. This patient had status epilepticus every three or four months, and had only two attacks during the study.

First and Second Parts.—In the first attack the patient was given high colonic irrigation, but owing to his cyanotic condition, chloroform was administered after about forty minutes. Shortly after the effects of the chloroform wore off (about fifteen minutes) he went into convulsions again. Chloroform was administered a second time with no better results than the first. The patient had twenty-six convulsions in about three hours. He was given bromids, chloral hydrate, high enemas and three administrations of chloroform before he finally became relaxed and went to sleep.

Third Part.—Only one attack occurred, at which time the patient commenced convulsing at 4:45 in the morning, and chloroform was administered, enough to relax the patient, but not enough to produce anesthesia. The patient went back into convulsions in about ten minutes, and chloroform was administered again at about 5:44, at which time he relaxed and began to breathe easier, and apparently the convulsions were arrested; but in about ten minutes he went into convulsions for a third time. Chloroform was given again with no better results. At 8 o'clock a high enema was administered which revealed considerable constipation. Several gallons of water were used until it came out clear. The patient's convulsions diminished, and at 9:20 ceased altogether.

CASE 7.—*History.*—J. G., boy, aged 17, whose first convulsion occurred at 18 months, and was said to have followed a cranial operation, carried a maternal neurotic taint. His Binet-Simon age was 8.2 years. During the study the patient had three attacks of status epilepticus.

First and Second Parts.—The first attack was treated with high colonic flushes, and chloroform was used only after the patient became very cyanosed and showed no signs of relaxation.

Third Part.—In the other two attacks the patient was chloroformed immediately on the arrival of the physician. He relaxed at once and had no more convulsions after administration of the chloroform. No cascara was given this patient as a regular routine. In this part of the study a purgative was given a few hours after the occurrence of status, and both times the patient was found to be in a constipated condition, which, however, did not interfere with the expected results from the chloroform.

CONCLUSIONS

1. The records prior to the study show that this treatment produced no decrease in the frequency of the status attacks.

2. In most cases the data during the study show that despite changes in the routine of treatment, the occurrences of status attacks came at the close of fairly regular intervals.

3. The length of the time required for the average patient to recover from the effects of status depended on how soon the attack was arrested, and was in the same ratio.

In view of these facts, the following deductions are made:

1. Chloroform should be administered early in practically every case of status epilepticus.

2. Although this study showed that most patients would not benefit materially by high enemas and the regular use of laxatives, it is advisable along with the use of chloroform to employ proper measures to overcome any tendency toward constipation.

TWO CASES OF CONGENITAL ABSENCE OF ONE KIDNEY

Marcus W. Lyon, Jr., M.D., Washington, D. C.

The two cases here recorded are interesting in that they nearly duplicated one another, except that they occurred on different sides of the body. Each single kidney present was essentially normal in shape and position, and possessed the weight of about two normal kidneys. A curious coincidence is that the two cases occurred in succession in a very small series of necropsies.

Case 1.—An elderly white man of medium build, rather emaciated, operated on for retention of urine and enlarged prostate, presented, as the chief pathologic conditions, aside from the absence of one kidney, an unruptured saccular aneurysm of the abdominal aorta, sclerosis of aortic and mitral valves at the bases, edema, and passive congestion of the lungs. The right kidney was absent, and no remnants were found in the neighborhood of the place in which it should have been, or elsewhere in the abdomen or pelvis. The right ureter was absent. The left kidney was in the normal position, hypertrophied, 14 centimeters long, 7.5 wide, 6 thick and weighed 335 gm. Aside from appearing larger and relatively narrower than usual, it was of normal shape and had but a single ureter. About a dozen small stones were in the pelvis of this kidney, and about half that number of stones were found in the bladder. The capsule was somewhat thickened, and stripped readily. Microscopically the vessel walls were somewhat thickened, slight fibroid changes were present in the kidney tissue, and there was some cloudy swelling of the convoluted tubules, and acute interstitial changes in many places. Only one ureter was found opening into the bladder, and a rather superficial examination did not reveal trace of a second.

Case 2.—A well built white man, aged about 30, operated on for appendicitis and chronic cholecystitis, had extensive hemorrhage into the lower lobe of the right lung as the only noteworthy pathologic condition aside from absence of a kidney. The left kidney was absent, and a careful search revealed no trace of it in either the abdomen or the pelvis, or the remains of the left ureter. The right kidney was in the normal position and approximately of normal shape, but relatively thicker and wider than usual, being 13 cm. long, 8.5 wide and 4.5 thick, and weighing 310 gm. Microscopically this kidney showed moderate cloudy swelling of the convoluted tubules, and acute congestion.

In neither of these cases was the anomalous condition suspected during life. In the first case a renal function test had been done and the kidney activity found satisfactory. The individual ureters had not been catheterized.

Unfortunately no observations were made as to the suprarenal bodies in these cases, or as to the condition of the seminal vesicles, etc., the importance of such not being appreciated at the time. Judged by external appearances, the testicles were normal in each case.

In 1903, Moore[1] recorded a similar pair of cases, complete absence of a right and of a left kidney. In 1908 Radasch[2] collected from the literature 255 cases of absence of one kidney. In the great majority of observed cases the suprarenal bodies have been normal. The left kidney is the one more frequently absent, and very frequently associated with its absence there is some defect or anomaly of the male reproductive organs on the same side.

1. Moore, F. C.: Jour. Anat. and Physiol., 1903, xxxviii, 71.
2. Radasch, H. E.: Am. Jour. Med. Sc., N. S., 1908, cxxxvi, 111.

Therapeutics

DISTURBANCES OF THE KIDNEYS

In order to treat an abnormal or diseased organ correctly, it is essential that its structure and its function be understood. Hence the discussion of the various disturbances of the kidneys will include such data as will afford a rational basis for the treatment.

ANATOMY AND PHYSIOLOGY

The kidneys are extraperitoneal, and lie normally on each side of the spine at the level of the twelfth thoracic vertebra and the first, second, and sometimes part of the third lumbar vertebra. The right kidney is about half an inch lower than the left, and is the one most frequently displaced. An average normal kidney is nearly 5 inches long, 3 inches wide, 1 inch thick, and weighs between 4 and 5 ounces.

The location and the approximate size of the kidneys may sometimes be determined by manual palpation with the patient lying on his back with the knees flexed. He is instructed to breathe slowly and deeply. By this method the lower extremities of the kidneys may be felt, provided the abdomen is not too fat or too distended. If a kidney can be depressed to the umbilical line and felt to slip back from the fingers again, it is movable. If it can be actually displaced, it is floating. A floating kidney may have had no normal attachments from birth, in which case its only support is the mesenteric.

Frequently even a floating kidney cannot be found or diagnosed, unless the patient is standing, partly supporting himself by resting his hand on the back of a chair, with the foot of the side under examination resting on the lower round of the chair. Even by this method a loose or floating kidney may not be discovered at a single examination, several being necessary before it is decided that the kidney is not movable, as the gas pressure in the intestines often holds a loose kidney in place. If a loose kidney is suspected, the patient, sitting up or standing, breathes rapidly and deeply, or jumps, and the loose kidney may be displaced downward. It can then be better palpated.

If a kidney is much enlarged, a dull percussion note will be found in a part of the abdomen which is ordinarily tympanitic. The right kidney is more frequently movable than the left, and may be mistaken for a distended pendent gallbladder; but if the kidney is floating, it can be moved much farther downward than the gallbladder could ordinarily be displaced. The most frequent causes of an enlarged kidney are hydronephrosis, pyonephrosis, tuberculosis, sarcoma, carcinoma, and echinococcus and cystic disease. Abscesses or growths behind and above a kidney may also displace it, and, if they are adherent to the kidney, the latter may seem enlarged.

The kidneys, like the liver and spleen, although not to such an extent, can change their size from time to time, depending on their blood supply. They may also grow large permanently in those who drink alcoholic beverages habitually and who require their kidneys constantly to do an increased amount of work.

The blood supply to the kidneys is large. It has even been estimated that under high blood pressure or under the action of diuretics the amount of blood passed through the kidneys in a minute may equal the weight of the kidney. Councilman[1] estimated that

1. Councilman, W. T.: The Pathology of the Kidney, The Journal A. M. A., Jan. 13, 1906, p. 81.

the blood supply to the kidneys may vary nineteen times as much as the average supply to other organs.

In younger life the kidney structure may rapidly undergo repair even after considerable damage, but this ability to regenerate diminishes as age advances.

FUNCTION

The kidney structure is divided into a varying number of closely connected lobes (from eight to ten), each having a cortical and a medullary portion. The drainage system of the kidney consists, according to Gerrish, of about half a million capsules and about 15 miles of tubes variously termed as each tube proceeds from the capsule to the kidney pelvis, the constricted, the convoluted, the twisted, the looped (Henle), the zigzag, the second convoluted, the arched, and the long straight portion. All of these tubes are lined with epithelial cells, their shape and contour varying with the different parts of the tube. Tufts of capillaries in the capsules make up the structures termed the malpighian bodies, which are all situated in the cortex of the kidney. Each tube is also surrounded by a network of blood vessels.

There is a large surplus, as far as the body need is concerned, of secreting and excreting substance of the kidney. Not only may one kidney be removed (the other being normal) without damage to the health and general metabolism of the individual, but also it has been estimated that even as little as one fourth of the combined kidney substance (one half of one kidney), if healthy, is able to carry on necessary excretion. This explains why a person may live with apparently so much kidney structure diseased. However, the single kidney or the healthy parts of otherwise diseased kidneys must and do work with increased energy. This increased energy can be maintained only by a perfect blood supply to the healthy section of the kidneys; hence impairment of the general or local circulation is immediately serious. Any swelling of the epithelium that will narrow or block the tubules in the healthy section of these damaged kidneys, or any blocking by pressure from kidney edema, is serious. With a minimum amount of healthy kidney structure, any poison or substance irritating the kidneys is dangerous, and a drug ordinarily harmless — for instance, arsenic — may by its action on the kidney epithelium in damaged kidneys be fatal. Therefore, before arsenic is administered in large doses, as in syphilis, it must be ascertained that the kidney function is not seriously impaired.

It will be recognized that the pressure in the renal arteries must be sufficient always for the circulation of blood through the vessels in the kidney structure and for the proper excretion of urine and for the proper purity of the blood in the renal veins. The pressure on the inside of the capsules of the glomeruli must be lower than that of the circulation. Hence any serious damming back of urine will interfere with excretion.

Normal functioning of several of the internal secreting glands is essential for the complete functioning of the kidneys; perhaps more especially important is the secretion of the suprarenals as demonstrated by Marshall and Davis.[2] A damaged, insufficient heart must cause, sooner or later, imperfect circulation in the kidneys, imperfect excretion of urine, and, from the resulting passive congestion, diseased kidney structure.

The renal nerves come from the renal plexus and small splanchnic, and some fibers from the pneumogastric. Asher and Pearce[3] believe that these fibers from the vagi are secretory to the kidney. However, all secretory nerves are supposed to originate in the sympathetic system. Stimulation of the renal nerves will cause constriction of the renal vessels and a diminished flow of urine; hence some incidental irritation from a nerve lesion or reflexes from some abdominal inflammation may interfere with the function of the kidney. If a renal nerve is paralyzed, the kidney will swell and the flow of urine will increase, provided the general circulation is normal. Polyuria may also be caused by cutting the splanchnic nerve.[4] The well known result of puncture of a certain portion of the floor of the fourth ventricle, namely, polyuria, shows a central nervous control of the secretion of the kidneys. Cushing's work on the pituitary has shown the relation of the hypophysis to kidney function. Injuries to the head, and some cerebral lesions, especially in the region of the medulla, may cause polyuria and at times even glycosuria. It has not been shown that the kidney itself is so affected as to cause a glycosuria in some disturbances of the thyroid and pituitary, though glycosuria may occur in disturbances of these glands. Pituitary stimulation of the kidney function has been repeatedly shown by Cushing and others. Motzfeld[5] has shown that the posterior lobe of the pituitary has a governing influence on the renal function, and insufficiency of this secretion causes diabetes insipidus.

If the general blood pressure rises, and more especially if the surface vessels contract, as from cold, there is an increased flow of urine, provided the renal arteries are not overcontracted. If the renal arteries are dilated while the general arterial system is not, the flow of urine will be increased, provided the flow of blood in the renal vessels is unimpaired. With excessively low blood pressure, there is no flow of urine.

The amount of kidney excretion is also much influenced by the changes in the blood composition. For this reason certain drugs may act as diuretics besides those which stimulate the heart and raise the blood pressure. Urea, dextrose, sodium chlorid and various salts act as diuretics. The reason some salts increase the flow of urine is probably that they raise the specific gravity of the blood, which then seeks water from the tissues to become isotonic with fluids outside of the blood vessels. This increased water in the blood is soon eliminated by the kidneys, and carries with it more or less of the extra salt. Caffein stimulates the nervous system, raises the general blood pressure, and soon generally causes diuresis by this circulatory effect alone. The first effect of caffein on the kidney vessels is to constrict them, but this is soon followed by a dilatation of these vessels.

The great value of digitalis as a diuretic is in cardiac insufficiency. If the systemic circulation is improved and if the kidneys are not too much damaged in this disease, diuresis will occur following digitalis administration. Thyroid extract may stimulate kidney secretion, as well as prevent poisoning from retained toxins in the blood in kidney insufficiency. Not only may glucose act as a diuretic, but small doses of saccharose, as 1 c.c. of a 100 per cent. solution in water, injected subcutaneously causes diuresis.[6]

(To be continued)

2. Marshall and Davis: Jour. Pharmacol. and Exper. Therap., 1916, viii, 525.

3. Asher and Pearce: Zentralbl. f. Physiol., 1913, xxvii, 584.
4. Jungmann: München. med. Wchnschr., Aug. 12, 1913.
5. Motzfeld: Boston Med. and Surg. Jour., 1916, clxxiv, 644.
6. Crispolti: Policlinico, Rome, May, 1915, Med. Section.

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SATURDAY, NOVEMBER 18, 1916

GOITER, GOITER REGIONS, AND THE IODIN CONTENT OF FOODS

The existence of well defined areas characterized by the prevalence of goiter is generally recognized. Regions in which goiter occurs as an endemic manifestation have long been known and described for European countries; and they are gradually being located in a similar way in this country.[1] Since the discovery of iodin in that organ by Baumann in 1895, the thyroid gland, involved in the occurrence of goiter, is believed to be concerned in some way with the metabolism or use or disposition of that element in the animal organism. Perhaps there is sufficient vagueness to correspond with the present uncertainty in regard to the subject in the following formulation by Crile: As far as is known, the function of the thyroid gland is metabolization of iodin, in order that iodin thus metabolized may perform a larger rôle in human and animal economy.[2] At certain periods of life when the activities of the organism are increased, and consequently an increased metabolization of iodin is required, the thyroid may enlarge as a result of its increased activity. This enlargement of the thyroid appears most commonly at the period of adolescence. The administration of iodin during that period, however, may prevent thyroid enlargement, or, if the thyroid is already enlarged, it diminishes its size, and may reduce it to normal.

The known relation of iodin to the thyroid, and the geographic variations of goiter are facts hitherto unrelated though often suspected to be involved with some unlike distribution of iodin in different areas of the world. The waters of different regions have most frequently been assumed to hold the key to the solution of the goiter problem in some marked difference of iodin content. The biochemists of the Ohio Agricultural Experiment Station in its department of nutrition have followed a suggestion of Crile to investigate the iodin content of foods from different parts of the country in the hope of throwing some light on the perplexity of the goiter situation. The distribution of goiter being known, it is now proposed to study the distribution of iodin in the dietary; for the prevalence of goiter in definitely localized situations readily leads to the inference of a local cause for the disorder. We are reminded by the Ohio investigators[2] that the idea of goiter being due to the food or drinking water of the regions in which it is found is very old; and it is a natural hypothesis that the iodin content of the foods and water should determine the condition and efficiency of the thyroid. In spite of the fact that these ideas have been constantly before us, however, since the beginning of the discovery of the cause of goiter, we have no direct evidence that they are in harmony with the facts.

Dr. Forbes and his Ohio associates have appreciated the limitations of the question before us. A fact tending to emphasize the significance of the iodin content of foods, they repeat, is the well known responsiveness of the thyroid in certain disordered conditions to iodin treatment. A fact tending to minimize the value of iodin estimations in foods is that the total iodin content of the body is so exceedingly small that it is quite conceivable that the organism could glean its entire iodin requirement from foods containing so little of this element that its presence would escape detection by the best of our chemical methods of the estimation of iodin. The energy of the Ohio biochemists has been commendable. Nearly 900 samples of foods were analyzed for iodin. An inspection of the data impresses one with the smallness of the proportion of our food products which contain iodin, the minute quantity in which the element ordinarily is found, and the seemingly haphazard nature of its distribution.

These most recent investigators find no evidence, in the kinds of foods containing iodin, that its presence is usually essential. In most cases they believe that it must be strictly an accidental constituent. Stated in the order of increasing abundance of iodin, foods and feeds may be grouped and rated somewhat as follows: nuts; spices, condiments and stimulants; fruits; cereals, hay, silage and forage crops; garden vegetables and root crops; leguminous seeds; animal products; manufactured foods, and milling and manufactory by-products. The results are too variable to deserve detailed reference here.

The evidence shows that iodin is more commonly present in the foods from some regions than from others. Nevertheless, in view of the seemingly inexplicable variability, it is concluded that no satisfactory basis exists for statements as to the general geographic distribution of iodin in the foodstuffs of the United States. The evidence seems, we are told, much more to emphasize the rarity and the accidental nature of iodin as a food constituent. The iodin content of foods grown in admittedly goitrous regions appears not to be lower than in foods grown elsewhere. Variations in the iodin content of the same grain crop from

1. Endemic Goiter, editorial, The Journal A. M. A., Aug. 12, 1916, p. 514; Goiter Among the United States Indians, Oct. 7, 1916, p. 1097.
2. Crile, G. W.: Foreword to Bulletin 299, Ohio Agricultural Experiment Station, Wooster, Ohio, June, 1916, on The Iodin Content of Foods, by E. B. Forbes, F. M. Beegle, C. M. Fritz, L. E. Morgan and S. N. Rhue.

several plots in the same field are often comparatively prominent. None of the ordinary methods of fertilization or other details of management of the soil have been found, in any regular way, to affect the iodin content of field crops.

In summarizing the significance of this laborious analytic undertaking, Forbes has given a fair estimate of what may be expected. It is possible, he concludes, that the iodin content of the drinking water would contribute valuable evidence to the subject at hand. It is also conceivable that food habits in a given region stand in a closer connection with the cause of goiter than does the iodin content of foods grown in the same region; for the residents of any particular place actually enjoy, in the selection of the dietary, a very considerable independence of locally grown products. Nevertheless, the results of the Ohio investigation direct one toward a study of factors other than diet which affect the amount and condition of the iodin present in the thyroid, as promising results of greater significance in relation to the cause of goiter.

THE BREAKFAST FOODS OF TODAY

The term "breakfast food," as applied to cereals marketed in a special way for household use, has been coined by the present generation. There is, of course, no novelty in cereals as a regular component of the dietary of man; they have been used from time immemorial. Wheat, corn, rye, oats, rice and barley have furnished liberal sources of nutriment to all the peoples of the earth; but as Mendel[1] has remarked, the ready-to-eat "breakfast foods" in highly advertised, neat and attractive packages have replaced the less expensive cereals long sold in bulk. The change is not merely one of the container or package; the contents no longer are the same. Oatmeal, for example, has lost some of its former popularity as a breakfast dish through the inroad of cornflakes and wheat foods. The breakfast staples have been changed by the modern advertiser; and illustrations of his ingenuity might be extended to include numerous food products. Except from the standpoint of extreme economy, the innovations have as a rule been wholesome and usually in the interest of food hygiene. The purity of the products has not infrequently surpassed the honesty of the advertisement.

The breakfast food preparations sold in American markets have been analyzed in various laboratories under state government auspices, so that an abundance of data respecting their composition is available. The peculiar feature regarding these food products is clearly not to be found in any unique nutritive make-up, but rather in the constant accession of new "brands." A recent report[2] regarding breakfast foods and their relative value indicates that it is possible to purchase as many as thirty brands in the stores of a single small city of South Dakota. These must represent only a fraction of the entire number offered for sale throughout the United States. The chemist of the South Dakota Experiment Station remarks that of the brands on the market ten years ago, only three or four can now be found. The others have either given way to better products or, what is equally likely, changed names as the result of waning popularity.

Breakfast foods are doubtless made from the grains and other additions claimed on the packages; that is, they represent the various cereals indicated by their manufacturers, and are not adulterated in any important sense. In respect to composition, therefore, they have the essential characteristics of the cereal grains. All are rich in starch. The ready-to-serve varieties are likewise mostly starch, though some sugar and dextrins may have been produced by cooking or roasting. To speak of them as "predigested" in any serious sense is scarcely warranted. The force of publicity, especially as the outcome of the administration of our food laws in recent years, has served to limit more and more the publication of extravagant claims for the breakfast foods. Misbranding is slowly losing its popularity; and the "cure" of appendicitis with toasted cereal no longer makes a strong appeal.

The nutritive value of these cereal preparations, estimated from their content of true nutrients per pound, does not vary materially. All of them must be regarded as wholesome and nutritious. They are sold in sealed packages which reach the consumer under sanitary conditions. Buying in bulk, as the South Dakota chemist reminds us, seems to have gone out of fashion, so to speak: Not even bulk rolled oats are kept on hand by grocers. The reason lies in the fact that consumers demand package service at a much greater cost.

The most striking difference between the marketed package cereals lies in their price estimated on the basis of nutrient units. It varied, in the survey just reported,[2] all the way from 7 cents to 44 cents per pound. The cost of 1,000 calories in these breakfast foods is from 4 to 25.4 cents, while the cost of a pound of protein runs from 45 cents to $4.60. In the case of the common old fashioned food preparations from grains, the following data represent comparable costs:

	1,000 Calories, Cents	One Pound Protein, Cents
Wheat flour	2	26
Oat meal	1.3	44
Corn meal	1	22
Rye flour	2	47
Rice grains	4	75

These figures, cited from the South Dakota report, show at a glance that the manufacture of these grains into breakfast foods has increased the cost enormously without adding anything to their nutritive values. It is evident that an extensive use of these high priced

1. Mendel, L. B.: Changes in the Food Supply and Their Relation to Nutrition, New Haven, Yale University Press, 1916.
2. Youngburg, G. E.: Breakfast Foods and Their Relative Value, Bull. 168, South Dakota Agricultural Experiment Station, 1916.

foods forms one noteworthy item in the high cost of living.

The average cost of the raw breakfast foods now on the market is about 8 cents a pound; of the ready-to-serve, about 16 cents. The price of these products has advanced about 33 per cent. during the last fifteen years. The South Dakota report ventures the statement that whatever is paid above the average cost of those now obtainable is unwarranted. The ready-to-serve kinds save the trouble of cooking, and often appeal in a special way to the taste. But we must agree with the state chemist that none of the breakfast foods are strictly economical. Their chief claim for popularity is in their package form.

THE AIR ON SHIPBOARD AND IN SUBMARINES

The work of the navy at times involves unusual living conditions, and entails certain performances which do not favor the preservation of an ideal hygienic status for the sailor. Insufficient air space in the sleeping quarters, exposure to extremes of temperature, irregular sleeping hours, hard work and the possibility of accidents during storms are some of the factors which may lead to an undue prevalence of injuries, diseases of the respiratory organs, and other diseases. Surgeon Holcomb[1] of the United States Navy has pointed out some of the problems which, during the past ten years, the naval sanitarian has faced in relation to the atmosphere. In the past he has been confronted by the problem arising from the presence on shipboard of more men per cubic foot of habitable air space than are to be found in almost any other occupation. With the development of aeronautics, men in the naval service have ascended to a great atmospheric tenuity; with the development of deep diving they have descended to atmospheric pressure equivalent to ten times the pressure at the sea level; within the submarine they are confronted with a reduction of oxygen content and a high degree of human and chemical air vitiation.

Now that the submarine is the center of so much interest, it is time to call attention to the problems which the undersea boat offers as a habitation. After investigating a series of accidents to the submarines of various nations, Holcomb believes that the hygiene of a submarine is largely a question of air supply. Consideration of the preservation or preparation of food always comes back to the question of air supply. Consideration of clothing, of rest, of sleep, brings us ultimately to consideration of ventilation.

The problems of ventilation are today being attacked vigorously from many sides.[2] The question of the vitiation of the air, particularly by human beings in closed habitations, is not a new one; for more than a century it has become a feature of every profound consideration of the physiology of breathing. From more purely chemical considerations, such as the rôle played by deficient oxygen pressure and by increased carbon dioxid tension, interest has gradually shifted to the development of the physical theory of ventilation. Lee says:

> Living beings constantly produce and give off to their environment an excess of bodily heat. This heat must be constantly carried away from the body, and is carried away partly through the lungs in expired air, but chiefly through the skin by the process of radiation, conduction through the clothing, and the evaporation of perspiration. It is obvious that to insure this necessary and healthful removal of heat there is needed an atmosphere about the body that is neither too hot nor too humid. If it is too hot, radiation and conduction are prevented; if too humid, the evaporation of perspiration is interfered with; and if the two conditions exist simultaneously, the result is a rise of bodily temperature with concomitant interference with the body's well-being. According to this conception, the air problem involved is one of physics and not of chemistry; the physiologic problem is a problem that begins with the skin and not the lungs; and the ventilation problem is a problem of maintaining the proper temperature, humidity, and motion of the air.

There can no longer be any doubt that, in aviation, mountain climbing and ballooning, certain physical features, notably the diminished oxygen pressure of the atmosphere, are of fundamental importance for the maintenance of comfortable existence. In caisson disease and diver's disease, physical factors incident to the production of gas emboli on decompression after exposure to a compressed atmosphere are likewise at work. These items have already become quite familiar to the students of respiration. Surgeon-General Stokes[3] has referred to the injurious effects of carbon monoxid, which develops in gun firing in the turrets of battleships, as one of the occupational risks of the navy. He believes that this gas in the furnace room gives rise to acute poisoning, often mistaken for heat prostration. In a sense the phenomena just cited must also be classed as special forms of menace from air vitiation in the work on shipboard.

Holcomb[1] points out that the bacteriology of the air, which at the present moment no longer seems to appeal to us as worthy of the same serious consideration that is given to other factors of air vitiation, deserves further study in the case of the battleship and the submarine. Considering the large number of men per cubic foot of habitable space on board a ship, he remarks that the bacteria of the skin become a matter of special consideration, not only as bearing directly on the health of the crew, but also within submarines, where the intense bacterial pollution must have its influence, on the preservation of exposed foods — a notorious difficulty aboard these boats.

The possibility of air-borne infection may not appear as formidable as it did in the days of Lister's

1. Holcomb, R. C.: The Atmosphere and Its Relation to the Human Mechanism, with Special Reference to the Naval Service, U. S. Naval Med. Bull., 1916, x, 430.

2. Ventilation, editorial, The Journal A. M. A., Nov. 7, 1914, p. 1672; Heat, Humidity and Working Power, Jan. 30, 1915, p. 444; Atmospheric Temperature and Immunity Reactions, May 13, 1916, p. 1553.

3. Stokes, referred to by Kober and Hanson: Diseases of Occupation and Vocational Hygiene, Philadelphia, 1916, p. 706.

pioneer work. It must be remembered, however, that the ship has features not similar to a habitation on shore. We can well understand, therefore, the appeal of the navy surgeon for further investigation of the bacteriology of the air on shipboard. Such an investigation is demanded, he contends,[1] if for no other reason than the high sick rate from tonsillitis. This disease has for years occupied second place in the navy admission rate statistics, being exceeded only by the admission rate for gonorrhea. The tonsillitis aboard battleships is probably dependent largely on the bacterial content of the living spaces. Owing to the large number of human beings per cubic foot of air space, the body surface supplies a culture medium for bacteria; the surface moisture and body heat contribute to bacterial growth, and ultimately the germs reach the atmosphere through drying in soiled clothing and bedding.

ANOTHER STEP IN HIGHER MEDICAL EDUCATION

Among the remarkable developments in medicine anywhere, at any time, are the changes that have occurred in medical education in the United States during the last ten or fifteen years. Once regarded as a disgrace, the standard of medical education in this country recently has advanced so rapidly that today it is equal to that of any other nation so far, at least, as the majority of medical teaching institutions are concerned. This change has occurred partly through the generosity of wealthy men and women who have contributed millions to medical schools and to medical research; partly because the medical profession itself became aroused to the wretched conditions in medical education, and undertook to rid itself of the incubus of the purely commercial medical school. Both were necessary to bring about the rapid advances that have placed American medicine in the high position it now occupies.

The announcement just made[2] of the establishment, as a department of the University of Chicago, of a new medical school, complete with postgraduate departments, extensive hospital facilities, numerous research branches, with a standard as high as that of any medical school here or abroad, and with an endowment sufficient to meet the expenses connected with full-time, paid instructors in all departments, is one of the most important events connected with the rapid development of scientific medicine and medical teaching in this country. It means much not only to medical education, but, more important, to public health, for it will be not only a teaching institution — an institution that will make for better and more broadly and practically educated medical practitioners — but also an institution for the development of preventive medicine. It means much to the city of Chicago — once the home of more quack medical colleges and diploma mills than any other city in the world. It will aid the city, which was the plague spot of medical education, to rid itself wholly of the commercial school and to develop medical institutions second to none. But the influence of this new institution will be broader than the city or the state in which it is located. It will be national, and will reach out and stimulate good work in every part of the country.

To President Harry Pratt Judson, of the University of Chicago, and to Dr. Frank Billings, Dean of Rush Medical College, is due, to a large extent, the credit for this achievement. It means the successful culmination of President Judson's ambition to carry out not simply the original plan of his predecessor — once looked on as a dream — but a greater and broader one than even President William Rainey Harper conceived.

2. See General News, p. 1534.

SUPERVISION OF THE INSANE OUTSIDE OF INSTITUTIONS

Every now and then some community is appalled by one or more deaths due to an apparently sudden outburst of violence on the part of some simple and seemingly harmless mental defective who has been allowed to go at large. Even more frequently people are shocked by the self-destruction of some friend or relative to whose periods of unexplained depression they had given but scant heed. After the event there is excited talk about prevention for the future, but ultimately nothing is done, because no one knows just what to do. Organized interest is being awakened, however, and experts are engaged in several cities, attempting to outline methods for ending this menace. At the request of the City Club of Chicago and the Illinois Society of Mental Hygiene, Dr. Herman M. Adler of Harvard University is conducting an investigation of the problem in Chicago. This work is a part of a more extensive survey of mental defectives being conducted throughout the country under the auspices of the National Committee for Mental Hygiene and the Rockefeller Foundation.

Dr. J. Allen Jackson,[1] chief resident physician of the Philadelphia Hospital for the Insane, has outlined a plan for the establishment of bureaus of mental hygiene as subdivisions of departments of health which seems susceptible of development in a manner that will afford protection against at least some of these mishaps. In Philadelphia, patients who have recovered sufficiently to become self-supporting, and whose mental state is such as to permit them to be cared for at home by relatives, are paroled. Before this privilege is granted, however, a trained social worker investigates the home conditions under which the patient will be placed, and if a parole is granted, the conditions and the patient are observed regularly until the case is terminated. The authorities of the

1. Jackson, J. A.: Month. Bull. Dept. Pub. Health and Charities, Philadelphia, September, 1916.

hospital from which the patient is paroled are thus enabled to determine satisfactorily, from reports made by the social worker, whether the parole should be terminated or extended and whether the patient should be given his discharge. The results of this system have suggested to Dr. Jackson the benefits that would be derived from the establishment of a bureau of mental hygiene, subordinate, in Philadelphia, to the Department of Public Health and Charities.

It is suggested that the proposed bureau of mental hygiene should work through various psychiatric centers. Physicians assigned to the various centers would bear the same relation to the custodial institution for the care of the mentally defective as medical inspectors in the contagious disease service ordinarily bear to the hospitals for contagious diseases. The advantages claimed by Dr. Jackson for the proposed bureau are, that (1) it would greatly improve the care of the indigent insane, and lessen the cost; (2) it would aid in preventing mental abnormalities, and in the care of the mentally sick; (3) it would afford excellent avenues for investigation and scientific research, and for the establishment of mental clinics and preventoriums; (4) it would weed out borderland cases from frank cases, and the acute recoverable cases from those of chronic types, so that the patients could be placed immediately under the treatment best adapted for them; (5) it would greatly relieve the influx of patients into the psychiatric wards of the general hospital; (6) it would permit the safe return to their families of patients who had apparently recovered or who presented periods of lucidity, or quiet intervals, under the supervision of social service workers assigned to the proper psychiatric units of the bureau of mental hygiene, and (7) it would protect the patient and society from harm.

If a bureau of mental hygiene will accomplish anything like the results Dr. Jackson promises for it, no city should be long in adopting the suggestion. Even if it will serve in a reasonable measure only to prevent such catastrophes as that caused by the madman McIntyre in Chicago, last July, the plan is worthy of adoption. In any event, the possibilities of properly organized bureaus of mental hygiene should receive careful consideration by those who are responsible for the public health and safety.

Eugenics.—Eugenics should, therefore, not be allowed to deceive us into the belief that we should try to raise a race of supermen, nor that it should be our aim to eliminate all suffering and pain. The attempt to suppress those defective classes whose deficiencies can be proved by rigid methods to be due to hereditary causes, and to prevent unions that will unavoidably lead to the birth of disease-stricken progeny, is the proper field of eugenics. How much can be and should be attempted in this field depends on the results of careful studies of the law of heredity. Eugenics is not a panacea that will cure human ills, it is rather a dangerous sword that may turn its edge against those who rely on its strength.—Franz Boas.

Current Comment

"SLEEPY WATER" FOR WIDE-AWAKE DOCTORS

The physicians of Chicago are being circularized by the "Sleepy Water Corporation" of Chicago. They are told that they are members "of the greatest and most progressive profession in the world." They are also told, in the same letter, that "Sleepy Water" is a "cure" for diabetes, Bright's disease and many other ills. The "greatest and most progressive profession in the world" — or at least the Chicago part of it — is assured that for six years "not a single case of nephritis or diabetes treated with this water has failed to be cured," and this in spite of the fact that many were "considered to be in a hopeless condition, with but a short time to live." "Sleepy Water" sells for a dollar a gallon, but you cannot buy one dollar's worth; nothing less than fifty gallons can be purchased, for this amount constitutes a "treatment." But, as the company points out to the Chicago branch of "the greatest and most progressive profession in the world," the cost of fifty gallons "is less than the railroad fare from most points to Hot Springs and surely is reasonable enough." At least a gallon a day must be taken if a "cure" is to be effected, but even five gallons a day can be taken "without any detrimental effect upon the heart action, no matter how bad the heart action seems to be." Of course, "Sleepy Water" is radio-active — but then, so is dish-water. However, the "greatest and most progressive profession in the world" is told that "Sleepy Water is the most highly radio-active water yet discovered." If we are to take the corporation's word for it, "Sleepy Water" has performed many miracles, although details of its *modus operandi* are not forthcoming, "as no autopsy has been performed on a person cured by Sleepy Water." Seriously, though, one wonders whether the explanation of the ineffable bosh sent out by the Sleepy Water Corporation is to be sought in the ease with which some members of the profession recently "fell for" a preposterous "goiter cure" exploited by a horse doctor. Here is a sporting proposition: We dare the Sleepy Water Corporation to print the same claims, now being made to physicians by means of circulars, etc., on the trade package and ship it in interstate commerce!

THE SACRIFICE OF THE CHILD TO CARELESSNESS

As winter arrives with unprotected open fires, hot stoves and burning brush heaps, there occurs a marked rise in the number of deaths from accidental burns. It is conservative to say that ninety per cent. of these deaths are the results of carelessness of adults, and most of the victims are helpless infants and children. In Chicago during the past fortnight two deaths occurred as a result of an older child setting fire to a younger one with a lighted candle; three deaths and one serious burning resulted when a child pulled over a pot of boiling water, coffee and potatoes, respectively; two serious burnings and one death followed "playing with matches." When death does not occur, the result is usually an extensive burn with horrible

scarring and mutilation. It is pitiable to read that one mother left a 5 year old child to "watch" a baby of 18 months, and in the room was a lighted candle. Carelessness and ignorance — their toll of deaths is greater than that of war.

"TRESPASSERS WILL BE PROSECUTED"

It is common knowledge that certain medical cults — as, for instance, the osteopaths and the chiropractors — when asking for special legislation, announced that their treatment would be limited to manipulation: that the use of drugs and surgical procedures was no part of their methods. The legislature of one state — Ohio — took these "limited practitioners" at their word; hence the Platt-Ellis law, passed in 1915, provides that "such certificates" [that is, certificates issued to these "limited practitioners"] "shall authorize the holder thereof to practice such limited branch or branches of medicine or surgery as may be specified therein, but shall not permit him to practice any other branch or branches of medicine or surgery, nor shall it permit him to treat infectious, contagious or venereal diseases, nor to prescribe or administer drugs or to perform major surgery." But these "limited practitioners," even in Ohio, in spite of these legal restrictions, have gradually branched off on other lines and have ceased to comply with the law. The Ohio State Medical Board now proposes to deal with the question in a practical and reasonable manner. It has decided to inaugurate a state-wide campaign to protect the public against the illegal practices of these "healers," and it will employ a corps of investigators to conduct the work. The law provides means for the revocation of licenses, and the board evidently intends to enforce these provisions, and to facilitate the matter proposes to hold monthly, instead of quarterly, meetings. There will be no element of persecution in their action, which, it is worthy of note, is being endorsed by the better element among these "limited practitioners." The chiropractors will be permitted to practice chiropractic, whatever that may be, and the "magnetic healers" to "magnetize," but only within the limits defined by the law and the regulations of the board made under that law; they will not be permitted to use these limited licenses as a back entrance to the unrestricted practice of medicine.

BACTERIOLOGY OF THE URINARY TRACT IN CHILDREN

The symptomatology of pyelocystitis in the young is so indefinite as to make the diagnosis depend essentially on the bacteriologic examination of the urine. While it is generally recognized that the most common infecting organism is the *Bacillus coli,* the question of the mode of entrance of the infecting organism into the urinary tract has not yet been answered to the satisfaction of all. It is admitted that infection may occur by way of the blood stream, and perhaps also by way of the anastomosing lymphatics of the large intestine and urinary tract. An ascending infection along the route of the urethra seems to be the most probable or at any rate the most common source of the disease; and this conclusion is fortified by the fact that in correspondence with the more ready contamination of the urethral orifice, pyelocystitis is much more common in girls than in boys. Investigators at the Children's Memorial Hospital, Chicago, working in the Otho S. A. Sprague Memorial Institute Laboratory, have wisely decided that the first essential for a definite conclusion on the subject at hand rests in a study of the bacteriology of the normal urine and urethra of children.[1] Surprisingly little has heretofore been ascertained about the relation of bacteria to the urinary tract in young persons. Beeler and Helmholz, who examined carefully twelve healthy children under 2 years of age, conclude that organisms of the colon bacillus group are not normal inhabitants of the female urethra. On the other hand, in extra-urinary infections occurring in the first two years of life, the colon group of bacilli is frequently found in the urethra (one third of the cases). Furthermore, in girls over 2 years of age, among whom greater care can be exercised in catheterization for diagnostic purposes, the urine is almost free of organisms; and it was always found entirely free from bacilli of the colon group by the Chicago investigators. The bacterial flora was practically the same in all the specimens examined, gram-positive cocci and diphtheroid organisms predominating, the former being present in practically every case in which any organisms were found. In no instance were gram-negative bacilli found in such numbers that it seemed probable that their presence resulted from more than an accidental contamination from the urethra.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARIZONA

Phoenix Regulates Hospitalities to Consumptives.—By an ordinance adopted last July, Phoenix has made it unlawful for any hospital, hotel, boarding or rooming house knowingly to receive, lodge or board any persons suffering from pulmonary tuberculosis, unless under a permit from the city health officer.

Personal.—Dr. Guillermo R. Servin, a Spanish-American physician, is reported to have been arrested at Tucson, November 1, charged with conspiracy to export arms to revolutionists in Mexico.——Dr. Alfred J. Murrieta, formerly chief surgeon for the United Verde Copper Company, Jerome, has moved to Los Angeles.

DISTRICT OF COLUMBIA

Gratuitous Public Service Restricted.—The medical and surgical service necessary in connection with public functions such as those incident to the inauguration of a president, the preparedness parade, and so on, have heretofore very generally been organized and directed by physicians selected by groups of laymen, without reference to the views of the local medical society. To meet this condition the society, on October 4, adopted the following resolution:

"It is the sense of the Medical Society that it is inimical to the best interests of the Society for any member thereof to render professional services to the public gratuitously in connection with any public function in the District of Columbia, unless a request for such services is made through the Society."

1. Beeler, Carol, and Helmholz, H. F.: The Bacteriology of the Urine in Healthy Children and Those Suffering from Extra-Urinary Infections, Am. Jour. Dis. Child., October, 1916, p. 345.

GEORGIA

Hospital News.—The first steps were taken, October 28, toward the erection of a hospital in Atlanta, to cost $200,000, when the trustees of Emory University applied for a building permit for the construction of the J. J. Gay, Jr., Clinic Building in the rear of the Atlanta Medical College, to cost $50,000. ——A new wing, to cost $40,000, is being added to the Harbin Hospital, Rome.——The Frances Berrien Hospital, Rome, has contracted for a new building to cost $25,000.

Personal.—Surg. William H. Slaughter, U. S. P. H. S., who has been in charge of the federal health survey in Floyd County since March last, has been transferred to the Marine Hospital, Stapleton, N. Y., and left for his new post of duty, October 31.——Dr. William S. Elkin, Jr., Atlanta, has been reappointed a member of the Georgia State Board of Pharmacy for a term of five years.——Dr. Robert E. McClure, formerly a member of the resident staff of the Macon Hospital, has accepted an appointment as superintendent of the State Tuberculosis Sanatorium, Atlanta. He has been succeeded as physician at the Macon Hospital by Dr. William A. Newman, Jr.

ILLINOIS

Personal.—Dr. James A. Kleinsmid, Aledo, was shot and seriously wounded by an unknown assailant while entering his home, November 10.——Dr. Ida M. Laird Barroll, Winnetka, has been elected president of the Cornell University Women's Club of Chicago.

Improvements at Bartonville.—A new cottage for male and one for female tuberculosis patients is being constructed at the Peoria State Hospital, Bartonville. The cottages are of frame and stucco construction. A new cottage for paroled men is nearly ready for occupancy.

Aesculapians Elect.—At the seventieth annual meeting of the Aesculapian Society of the Wabash Valley, held in Paris, October 26, the following officers were elected: president, Dr. J. W. Alexander, Oakland; vice president, Dr. Thomas O. Freeman, Mattoon, and secretary-treasurer, Dr. Herbert N. Rafferty, Robinson.

Alienists Meet.—The Illinois State Hospital Medical Association held its annual meeting at the Peoria State Hospital, October 26, under the presidency of Dr. Charles Burr Caldwell, assistant superintendent of the Peoria institution. The Chicago State Hospital was selected as the place for the next meeting, to be held in January, 1917.

The County Sanatorium Movement.—A state-wide fight against tuberculosis has begun. At the election, November 7, eight counties voted to tax themselves, and to erect and maintain a woman's sanatorium, and this movement will be continued in every county of the state. The counties that voted to levy taxes up to 3 mills for $100 valuation were: La Salle, Adams, Livingston, Morgan, Ogle, Champaign, Kane and McLean. The proposition was defeated in Rock Island and Green counties.

Chicago

Cause of Englewood Epidemic.—The epidemic of typhoid fever at the Englewood High School, in which sixteen cases occurred, with one death, is believed to have been caused by an open cesspool adjoining the high school building, the infection being carried by flies to the lunchroom of the school. The cesspool has been disinfected and filled up.

Curtis Resigns as Superintendent of St. Luke's.—Mr. Louis R. Curtis, for over ten years superintendent and secretary of St. Luke's Hospital, has resigned to become president of the Frank S. Betz Company. Mr. Curtis during late years has been prominent as a consulting engineer among hospitals and has introduced many innovations in hospital construction and organization.

Preparedness Meetings.—The November 8 meeting of the Chicago Medical Society was devoted to preparedness. The principal addresses were made by Drs. Frank F. Simpson, Pittsburgh; Franklin H. Martin, Chicago, and Col. William Stephenson, M. C., U. S. Army.——At the meeting of the Physician's Club of Chicago, November 16, Lieut. John Weatherson, M. R. C., U. S. Army, presided. The program was devoted to "The Military Doctor at Home and Abroad." Dr. H. M. Richter, recently in charge of a base hospital in Germany, detailed his experiences; Dr. Kellogg Speed spoke on "Six Months in Charge of an English Base Hospital in France"; Capt. Robert J. Gay, M. C., First Illinois Cavalry, presented his ideas as to "Preparedness in Brownsville, Texas," and Dr. John Ridlon gave a talk illustrated by photographic slides on "The First Medico-Military Training Camp at Plattsburg."——Preparedness was also the dominant note of the meeting of the Illinois Division Medical Reserve Corps, U. S. Army, at its meeting, November 14. The provisions of the order creating the Officers Reserve Corps were explained and discussed, and a motion that all members of the division be urged to join the Officers Reserve Corps, Medical Division, was unanimously adopted.

INDIANA

Water Purification.—The towns in Indiana on the south shore of Lake Michigan are endeavoring to reduce their high typhoid fever rate by the installation of plants for the filtration and treatment of the lake water.——East Chicago is planning a filtration plant to cost $100,000.——Whiting has already contracted for a large filtering system.——Hammond is said to be about to instal a plant for the treatment of water with chlorin.

Personal.—Dr. Anthony H. Bennewitz, Lafayette, has moved to Cicero, Ill.——Dr. James A. Work, Elkhart, who has practiced in that city for forty-three years, leaves this month for Phoenix to make his home with his daughter.——Dr. David C. Peyton, Jeffersonville, has been elected president of the American Prison Association.——Dr. Florin H. Pugh, Williamsport, was stricken with cerebral hemorrhage, October 10, and is in a critical condition.——Dr. William A. Hollis, Hartford, was elected president of the Eighth District Medical Society at its meeting in Muncie, October 19.

MARYLAND

State Hospitals' Christmas Exhibit.—The five state hospitals for the insane and feebleminded, consisting of the Springfield State Hospital, Spring Grove State Hospital, Crownsville State Hospital, Eastern Shore State Hospital, and the Rosewood State Training School, together with the Eudowood Sanatorium, will have an exhibit of the patients' handiwork in Baltimore from November 15 to December 1, to show the public the methods of diversional occupation in the treatment of the patients. The proceeds from the sale of the articles will be used as a recreation and amusement fund for the benefit of the patients.

Personal.—Dr. Henry W. Hodgson, Cumberland, one of the oldest physicians of Allegany County, was severely cut and bruised recently when his automobile overturned near Clarysville on the National Pike as a result of a collision with a motorcycle.——Dr. Joseph I. France has been elected United States senator from Maryland.——Dr. G. Loutrell Timanus, Baltimore, has been appointed medical supervisor of boys, by the Public Athletic League.——Dr. Hugh H. Young of the Johns Hopkins Hospital delivered the principal address at the meeting of the New York Academy of Medicine, November 3.

Health Wardens Named.—Because of uncertainty when the Fifth Regiment Field Hospital No. 1 and Ambulance Company No. 1 will return from Eagle Pass, Health Commissioner Blake has been authorized to appoint three temporary health wardens for the work of three men on the border: Major J. Harry Ullrich, Baltimore, commander of the field hospital; Capt. Frederick H. Vinup, Baltimore, with the ambulance company, and Capt. Edmond A. Munoz, Baltimore, of Company K, Fifth Regiment. The new men are necessary because the extra physicians employed during the outbreak of infantile paralysis have been laid off.——Capt. Clarence P. Erkenbrack, Baltimore, who was on the border with the First Regiment, has resumed his duties as health warden.

MISSOURI

Hospital News.—At a dinner at the Muehlbach Hotel, Kansas City, November 8, a movement was initiated to raise $175,000 to complete the new building for the Mercy Hospital, a free institution devoted to the care of indigent sick and crippled children.

Tuberculosis Colony.—The tuberculosis colony at Koch Hospital, St. Louis, the municipal institution for the care of tuberculosis cases, was opened for the reception of patients, November 9. New cottages have been built to care for 102 patients with the incipient type of tuberculosis.

Donation to Library.—The Oto-Laryngological Section of the St. Louis Medical Society has donated to the library of the society the *Transactions of the American Laryngological*

Society, Transactions of the American Laryngological, Rhinological and Otological Society, and the *Archives of Otology,* about 100 volumes in all. The library now has a complete set of these publications.

Personal.—Dr. George P. Pipkin, Kansas City, now serving as captain in the medical corps on the border, is convalescing after an attack of typhoid fever.——Dr. Frank G. Beard has resigned as health officer of St. Joseph.——Dr. William L. Whittington, superintendent of State Hospital No. 2, St. Joseph, gave a dinner to the members of the Buchanan County Medical Society, November 4, at which more than 125 were present.

St. Louis

Personal.—Dr. Malcolm A. Bliss has been appointed by the mayor a member of the committee created to investigate the cases of persons charged with minor crimes and to suggest better methods of caring for them.——Dr. Keating Bauduy is under treatment at the State Hospital.——A lecture was delivered by Dr. Eugene F. DuBois, medical director of the Russell Sage Institute of Pathology, New York, before the Missouri Alpha Chapter of the Alpha Omega Alpha Fraternity in the lecture hall of the St. Louis Children's Hospital, November 14, on "Clinical Calorimetry."——Dr. Andrew H. Ryan has accepted the chair of physiology in Tufts Medical College, Boston.

NEW YORK

Compulsory Health Insurance Meeting.—Under the auspices of the Committee of Medical Economics of the Medical Society of the State of New York, a meeting will be held at the New York Academy of Medicine, Nov. 23, 1916, at 8 o'clock, devoted to compulsory health insurance. The following addresses are scheduled: "Relations to Preventive Medicine," B. S. Warren, M.D., U. S. Public Health Service; "The Labor Man's Point of View," Mr. Hugh Frayne, American Federation of Labor, National Civic Federation; "The General Medical Practitioner's Point of View," Eden V. Delphey, M.D.; "The Advantages of Compulsory Health Insurance," Mr. Miles M. Dawson, insurance expert. Discussion to be opened by Lee K. Frankel, Ph.D., insurance expert, Dr. Alexander Lambert, and others.

New York City

Depew Delivers Annual Address.—The anniversary address of the New York Academy of Medicine was delivered, November 16, by Hon. Chauncey M. Depew on, "The Art of Growing Older, and the Value of an Interest in Public Life."

Typhoid Carriers Found.—As a result of nearly two years' work, the Bureau of Preventable Diseases of the health department has completed a list of thirty-five carriers of typhoid fever, and has published a report of what is being done to prevent these carriers from spreading the disease.

Public Clinic.—A public clinic for genito-urinary disease was inaugurated November 2 at the West Side German Dispensary and Hospital, 328 West Forty-Second Street. The clinic is under the charge of Dr. Abraham L. Wolbarst and will continue each Thursday evening at 8:30 until April, 1917. Physicians and medical students are invited to attend.

Personal.—Dr. Michael V. Ball, formerly of Warren, Pa., has been elected full-time professor of pathology in the New York Medical College and Hospital for Women.——At the service held in memory of the late Dr. John A. McCorkle, Brooklyn, in Plymouth Church, October 8, the pastor, the Rev. Newell Dwight Hillis, paid a notable tribute to the work of the deceased physician, who had labored for forty years in Brooklyn.

OHIO

Hospital News.—The Marion State Hospital has been purchased by Dr. James O. Starr, Pitsburg.——Mount Sinai Hospital, Cleveland, was opened to the medical profession, October 1.

Personal.—Dr. Ralph W. E. Cole, formerly of York Village, Maine, has been appointed city epidemiologist of Akron.——Dr. Walter A. Haldy, Cleveland, has accepted a call for service as surgeon at a base hospital at Deutsch-Eylau, West Prussia, and sailed from New York, October 6.——Dr. Ernest V. Ackerman, Fredericktown, was shot and seriously wounded while making a professional call near Mount Vernon, November 1. He is under treatment at the Mount Carmel Hospital, Columbus, and may, it is said, lose the sight of one eye.——Dr. William R. Deemer, Fremont, was seriously injured by the overturning of his automobile after a collision with a motor truck.——Dr. Clayton R. Truesdale, Fremont, has been elected president of the chamber of commerce of that city.——Dr. Orin W. Robe, Portsmouth, has been appointed division surgeon of the Chesapeake and Ohio System, with headquarters in Portsmouth.——Dr. John H. McVay, Toledo, is reported to have been seriously injured in an automobile accident near Portland, Ore., recently.——Dr. Samuel P. Fetter has resigned as a member of the board of health of Portsmouth.

OKLAHOMA

Personal.—Dr. C. E. Frost, Duncan, is recovering after a serious illness.——Dr. Thomas L. Wiltus, Granite, who was operated on for appendicitis, is recovering.——Dr. Julian Field, Enid, is convalescent after an abdominal section.

New Hospitals.—The Oklahoma Hospital at Tulsa has recently been opened. It is a four story, fireproof building and is under the charge of Dr. Fred S. Clinton.——The first free clinic to be operated in Tulsa was opened at the Sunnyside Hospital, October 10. Tuesdays and Fridays of each week are devoted to the work of the free clinic.

PENNSYLVANIA

Philadelphia

Memorial to Dr. Uhle.—At a meeting of the German Hospital Dispensary Chiefs' Association, Monday, October 30, a minute was unanimously adopted, setting forth the feeling of the members of the association in the death of their fellow member and president, Dr. Alexander A. Uhle.

Work of Aid Association.—The committee on benevolence of The Aid Association has received the usual number and character of appeals for financial aid as in former years, all of these being made by physicians or their families in distress; none have turned out to be unworthy. Four are receiving assistance annually and five have needed temporary assistance. A physician, now old and infirm and totally unable to support himself, who once enjoyed active practice in Philadelphia, through the influence of friends has entered a home. His wife supports herself and is able to contribute one third of the annual expenses, and the society the remainder, $100. A widow of a former assistant professor at one of the medical colleges, advanced in years and in very limited circumstances, is receiving an annuity of $200. A physician, paralyzed as the result of an infection contracted during an operation, and who is now entirely incapacitated, was given $100 and made an annuitant at $200. An aged physician, broken in health and unable to support himself, was given $100, which, together with a similar amount raised by the alumni association of his medical college, enabled him to enter the Old Man's Home. A widow of a life member, advanced in years, suffering from a chronic and painful affection, dependent on her own efforts, to a great extent, for support, was given $50 and made an annuitant at $200. A widow of a physician, far advanced in years, dependent on a son earning a few dollars a week, was given $100 when her son was injured and incapacitated for many weeks. A widow of a physician, also advanced in years and endeavoring to maintain herself by keeping a small apartment house, was given $50. A member in poor health, and as a result thereof, financially distressed, was given $22.

GENERAL

Appeal Refused.—The Supreme Court, November 6, refused to hear the appeal of Drs. Nathan A. Hughes, T. W. Hughes and O. F. Bourque from indictments drawn against them at Houston, Texas, for alleged frauds in conducting medical offices. Nathan A. Hughes was sentenced to three years' imprisonment; T. W. Hughes, eighteen months, and O. F. Bourque to imprisonment for one year.

Investigation of Deaths on Ship.—Surgeon-General Blue, U. S. P. H. S., has appointed a board consisting of Surg. Hugh S. Cummings, P. A. Surg. William M. Bryan and Asst. Surg. Frank M. Faget, U. S. P. H. S., to investigate the accident on board the British steamship *Devonian* in East Boston, November 2. Three carpenters were killed by fumes said to have been due to the fumigation of the holds of the ship.

Hygienists to Meet.—The annual meeting of the American Social Hygiene Association and joint conference with the St. Louis Social Hygiene Society and Committee of One Hundred of St. Louis will be held in St. Louis, November 19 to

21. The chief subjects for discussion are "The New Public Conscience," "Health Aspects of Social Hygiene," "Ways and Means of Public Education Regarding Social Hygiene," and "Repression of Commercialized Vice."

Eye, Ear and Throat Specialists to Meet.—The committee on transportation of the American Academy of Ophthalmology and Oto-Laryngology announces that the members will leave Chicago, December 9, at 10:15 p. m. by the Illinois Central Railroad, arriving at Corinth, Miss., at noon the next day, where they will take a 50 mile drive through the National Military Park, reaching Memphis at 7:10 the same evening. After the Memphis meeting it is proposed to go to New Orleans, returning by way of Mobile, Birmingham, Chattanooga and Cincinnati. Dr. Harry S. Gradle is in charge of the arrangements for this trip.

Bequests and Donations.—The following bequests and donations have been announced:

Orlando (Fla.) Hospital, a donation of $5,000 through Bishop Cameron Mann.

For the aid of persons afflicted with tuberculosis in Dallas, Texas, a donation of $1,000, by Mr. P. P. Martinez.

Mount Sinai Hospital, Cleveland, a donation of $5,000, by Mr. Samuel Wise, for the immediate erection of a separate nurses' home.

Flagler Hospital, St. Augustine, Fla., will be entirely rebuilt as a memorial to the late Henry M. Flagler, by his widow; a donation of $10,000 by Dr. Anderson.

New York American Baby Hospital Fund, a contribution of $5,000 by William Randolph Hearst toward the establishment of a free dispensary, which will provide treatment for 1,000 children suffering from tuberculosis.

Albany Medical College, a subscription of $10,000 by members of the board of trustees and others.

East End Hospital, Pittsburgh, a bequest of $5,000 for the endowment of a bed for free use of poor and deserving persons, by the will of Mrs. Josephine DeJonghe, of Chicago.

German Charity Hospital, Kansas City, Mo., a donation of $25,000 for a building to be known as the Minnie Bardon Building, by Richard Bardon, Tulsa, Okla.

Disinfecting Imported Hides.—Effective January 1, new rules and regulations have been issued by the treasury department and the department of agriculture directed toward the exclusion of anthrax carried in imported hides; also against foot and mouth disease and rinderpest. Hides from countries not shown by the United States consular agents or official veterinary or sanitary inspectors of the countries to be free from anthrax, if such hides are to be admitted on certificate, must be certified to have been immersed in 1:1,000 solution of mercuric chlorid for twenty-four hours instead of thirty minutes, as under present regulations. Hides in bales unaccompanied by certificate of freedom from anthrax, rinderpest or foot and mouth disease, or by certificate of disinfection, will be admitted if such bales have been whitewashed under United States consular supervision and the importers agree to ship them in customs-sealed cars to a tannery provided with adequate facilities for disinfection, and to disinfect them in accordance with the requirements of the Bureau of Animal Industry under supervision of an agent of the bureau. Sun-dried hides from countries certified to be free from anthrax will be admitted without disinfection.

Physicians Go to Study South American Diseases.—Drs. William T. Councilman, Boston, and Robert A. Lambert, New York, are accompanying an expedition fitted out by Dr. Hamilton Rice, well known for his explorations on the upper Amazon, to the region of the upper Negro and Orinoco. The expedition left New York, November 15. It is the intention to study the diseases of men and animals met with during the exploration. Although a region of insects, the meager reports which have come from the country have tended to show that there are comparatively few insect-borne diseases, except malaria, among the Indians. The steam yacht *Alberta*, which carries the expedition, after a stop at Barbadoes, will reach Para, spending a few days there. It will then proceed to Manaos, about 1,000 miles up the Amazon, and, after a brief stop, go on to St. Izabel on the Rio Negro. This will be the home station of the yacht. From there the party proceeds in a specially arranged power barge to St. Felipe and through the Casiquiare Canal some distance down the Rio Negro. This region is one of the least known on the globe. There are no settlements, and although the rivers are more or less well known, practically nothing is known of the interior country.

National Board Holds First Examination.—The National Board of Medical Examiners held its first examination in Washington, October 16-21. Ten candidates were examined of whom five passed and five failed. The successful candidates were:

Thomas Arthur Johnson, De Kalb, Ill.; born at Malta, Ill., 1885; S.B., University of Chicago, with Phi Beta Kappa; Rush Medical College, 1911, with Alpha Omega Alpha; assistant in bacteriology, University of Chicago, 1910; license in Illinois, 1911; internship in Cook County Hospital, 1911-1913; City Bacteriologist of De Kalb, Ill., 1913; member of the Board of Health of De Kalb since 1914.

Hjorleifur T. Kritjanson, Wauwatosa, Wis., A.B., University of North Dakota, 1903; M.D., Rush Medical College, University of Chicago, 1907; pathologic intern, Rhode Island Hospital, Providence, R. I., 1907-1908; house staff, Worcester City Hospital, Worcester, Mass., 1908-1909; assistant superintendent and resident physician, pathologist and bacteriologist, Providence City Hospital, Providence, R. I., 1909-1912; assistant professor of pathology and bacteriology, Medical School, University of North Dakota, University, N. D., 1912-1913; bacteriologist, State Public Health Laboratory, University of North Dakota, 1912-1913; pathologist and resident roentgenologist, Milwaukee County Hospital, 1913; resident surgeon to Milwaukee County Hospital, 1915; assistant professor of surgery, Marquette School of Medicine, Milwaukee, Wis., 1915.

Harry Sidney Newcomer, Madison, Wis.; born in Willetts Point, N. Y., in 1887; A.B., University of Wisconsin, 1909, A.M., 1910; Johns Hopkins University, 1915.

Orlow Chapin Snyder, New York; born in Rockport, Ind., 1890; A.B., Indiana University, 1910; University of Michigan Medical School, 1915; intern City Hospital, Blackwells Island, New York, until December, 1916.

William White Southard, Redlands, Calif.; born in Halsted, Kan., 1886; A.B., Leland Stanford University, 1910; Johns Hopkins University, 1916.

The five candidates who failed were graduates of Howard University, School of Medicine, Johns Hopkins University, Medical Department, Rush Medical College, and University and Bellevue Hospital Medical College. The unsuccessful candidates will be permitted to take a second examination at the end of one year; a third examination will not be allowed.

Another Step in Higher Medical Education.—The Board of Trustees of the University of Chicago announce the gift of $1,000,000 by the General Education Board and $1,000,000 by the Rockefeller Foundation for the organization of medical instruction at the University of Chicago. The amount will be supplemented by $3,300,000 to be raised by the University of Chicago. One million, two hundred thousand dollars of this amount has already been pledged. This money will be added to the $2,000,000 endowment of the present two year school and will be used to establish an undergraduate medical school, a graduate medical school and a foundation for medical research, all parts of the University of Chicago. The undergraduate medical school will be on the South Side, directly connected with the University, and will give the entire four years of the undergraduate course. This will be the Medical School of the University of Chicago. In addition to the $2,000,000 endowment which now supports the present two year course, there will be provided $1,000,000 for new hospital buildings (ground valued at $500,000 has been donated by the university); $1,500,000 for maintenance of the 250-bed clinical hospital at the university and $1,500,000 as endowment for salaries, making a total of $6,000,000 for the undergraduate school. In this school, all of the teachers will be whole time men.

On the West Side, Rush Medical College, the Central Free Dispensary and the Presbyterian Hospital will be combined to form a postgraduate department. An effort will be made to coordinate the O. S. A. Sprague Memorial Institute, the work of which is now directed by members of the faculty of Chicago University and Rush Medical College. A laboratory building for the postgraduate department, to cost $300,000, will be erected on the site of the old Rush Medical College Building. An endowment of $1,000,000 will be provided for this department. The postgraduate instruction will be of the same grade as the work in the undergraduate department.

Research work is to go on in all departments. Graduate students are to be offered an opportunity to do research work. The Presbyterian Hospital, comprising 440 beds, of which 325 are ward beds, will be utilized in this work. In both the graduate and research schools, all heads of departments and all laboratory teachers will be full time men. The adjunct staff will be made up of clinical instructors and part time teachers.

In developing the undergraduate department, not only the Presbyterian Hospital, but other standardized hospitals will be brought into relation with the undergraduate school, for furnishing the necessary facilities for the fifth or intern year. It is possible that the Children's Memorial Hospital, the Durand Hospital, the Home for Destitute Crippled Children and the St. Joseph's Hospital may become part of the new organization.

The Presbyterian Hospital, the Sprague Memorial Institute and other affiliating institutions will not become the property of the new school, but will each retain its independence. However, such property as can legally be transferred will be turned over to the new school. The governing body will be the trustees of the University of Chicago. The Rockefeller Foundation and General Education Board will not be represented on the governing body. The graduate instruction offered will be of the highest type.

These plans require for their consummation a total of $7,300,000, of which $2,000,000 already exists in the endowment of the two year medical department now conducted by the University of Chicago, while $2,000,000 more is provided for by the gift just announced and $1,200,000 by private subscription, making a total of $5,200,000 that has already been secured, leaving $2,100,000 still to be raised. The trustees of the University of Chicago and of Rush Medical College and the Board of Managers of the Presbyterian Hospital have, by resolution, agreed to the plan under which the gifts of $2,000,000 are made. The additional money is needed to carry them out, but the plans themselves are not contingent on securing the money. Details regarding the names of the schools, the organization of the faculties, and the relation of Rush Medical College have not yet been taken up and will not be until the funds are raised.

The trustees of the university met, November 14, and named the following committee to raise the necessary funds: President Harry Pratt Judson, chairman, A. C. Bartlett, Julius Rosenwald, Andrew McLeish, Thomas E. Donnelley, Robert L. Scott, Harold H. Swift, Martin A. Ryerson and Dr. Frank Billings. The probabilities are that the raising of the necessary amount will soon be accomplished.

FOREIGN

Göttingen Scholarships in Memory of Esmarch and Ehrlich.—Each of these scientists provided in their wills for a fund of 10,000 marks for stipends for needy students at the University of Göttingen.

French Medical Unit in Roumania.—The unit which has just left for Bucharest with full equipment comprises the surgeons Moure and Sorel, with Clunet and Ripert, internists, and Duchaffaud, radiologist, besides nine nurses.

Red Cross President Dies.—The Marquis DeVogue, member of the academy and president of the Central Committee of the French Red Cross, aged 87; for a long time in the diplomatic service of France as ambassador to Constantinople and Vienna, died in Paris, November 10.

Deaths in the Profession Abroad.—C. S. Hägler, a leading surgeon and bacteriologist of Basel, Switzerland, connected with the university but prevented by deafness from a full professorship, succumbed to cancer, aged 54.——O. Schwartz of Cöln, the dean of Prussian physicians, aged 93.

Hygienists Meet.—The South American Association of Hygiene, Microbiology and Pathology of Buenos Aires held its annual meeting, September 25, under the presidency of Dr. Rudolph Krauss. It was decided to hold a conference on hygiene, microbiology and pathology in Rio de Janeiro in 1917, under the presidency of Dr. Oswaldo Cruz, Rio de Janeiro.

Fees Only for Secret Formula Preparations.—The Guatemalan government has recently informed the United States minister that the analysis fee of $10, required in the case of medicinal preparations imported into the country, will hereafter be imposed only when the products are of secret formula. It is expressly stated, however, that the fees already collected will not be refunded.

Hospital Notes.—The local authorities of Leplitz, Austria, are planning the erection of a tuberculosis hospital which will cost $100,000, and which will provide accommodation for fifty-four patients, to be used in connection with the present district hospital.——Plans have been drawn for a hospital which is proposed to be erected in the city of Madila, Colombia, and which is to cost about $1,000,000.

Flemish University at Ghent, Belgium.—The University of Ghent was founded in 1816, and the Germans have transformed it now into a Flemish university, giving the chairs to Flemish born and speaking scientists. The latest addition to the faculty is Prof. J. Versluys, who has had the chair of zoology and comparative anatomy at Giessen since 1907, and now assumes the corresponding chair at Ghent in his native land.

Bárany Called to Stockholm.—It is rumored that negotiations are pending that may bring Prof. R. Bárany of Vienna to the University of Stockholm as professor of otology and rhinolaryngology. He recently delivered at Stockholm the customary address describing his research when presented with the Nobel prize. It will be remembered that he was a war prisoner in Russia when notified that the prize in medicine had been conferred on him.

The Edith Cavell Training School for Nurses.—This new hospital and training school for nurses was opened at Paris on the anniversary of the death of Miss Cavell. It is installed in barracks with accommodations for 100 patients, and it is hoped that subscriptions will be received permitting the erection of permanent buildings, as the land has been donated. Miss Cavell was at the head of the training school for nurses connected with the surgical hospital at Brussels in charge of Depage.

Chagas to Lecture at Harvard.—The *Brazil Medico* of October 7, just received, states that Dr. Carlos Chagas of the Institute for Experimental Pathology at Rio de Janeiro has been invited to conduct a course on tropical medicine at Harvard University by Professor Strong, who has the chair of tropical diseases. Our exchange adds that Chagas has accepted the invitation. A comprehensive report of some recent research on Brazilian trypanosomiasis, "Chagas' disease," was summarized on page 1479.

Notification Required of Medical Interruption of Pregnancy.—The authorities in Prussia have recently stated the principles that should govern the physician in the interruption of a pregnancy. No grounds except medical ones should be considered—only serious and unavoidable danger, from an already existing disease, which cannot be averted by any other means. The physician is not justified in arresting the pregnancy from any social or race-hygiene reasons; any such action conflicts with the criminal code. A consultation of several physicians is advisable, and official notification is required.

Tobacco Smoking by the Young to be Prohibited.—THE JOURNAL mentioned last year the ban placed by the Lübeck board of health on smoking by the young. The minister of the interior of the duchy of Sachsen-Altenburg, Germany, has recently promulgated a similar degree. Explaining the reasons why tobacco smoking is injurious for the undeveloped vascular and nervous systems, the decree says that no one under 18 years of age is allowed to use tobacco in any form without consent of parents, teacher or guardian and, outside of the residence, only in their presence. The sale of tobacco in any form to persons under 18 is forbidden. Fines up to $15 or corresponding jail terms can be imposed.

Brazilian Odontologic Congress.—The first odontologic congress in Brazil, according to Consul General A. L. M. Gottschalk at Rio de Janeiro (*Commerce Reports*, Nov. 6, 1916), was held in Rio, October 9, and was well attended by delegates from the various dental schools of the country. Remodeling of the dental course and an increase in the requirements for obtaining a license to practice were among the questions considered by the congress. One of the proposed requirements was that the student must have a knowledge of English. It is said that a large proportion of the dentists of Brazil have been educated in the United States, but that on account of the general knowledge of French possessed by the Brazilians, French technical books, instruments, etc., are more largely purchased. The requirement of English in the course may change this to some extent, it is believed.

Argentine Republic Medical Congress.—The first meeting of the Medical Congress of the Argentine Republic was held in Buenos Aires, September 17 to 24. About 1,000 delegates from Buenos Aires and the different provinces of the Argentine Republic, Brazil, Paraguay, Uruguay, Chile, Peru and Bolivia were present. About 500 papers were presented for consideration before the congress, which was divided into sections on medical clinics and therapeutics, biology and pathology, obstetrics and gynecology, pharmacy and chemistry, general surgery, theory and practice of medicine, military sanitation, ophthalmology, odontology, pediatrics, dermatology, microbiology and laryngoscopy. The congress recommended the founding of hospitals to house children suffering with tuberculosis; the establishment on the seashore, on the plains or in the mountains of sanatoriums for delicate or poorly fed children, who would be in danger of contracting tuberculosis; the adoption of prophylactic measures to protect the newly born and nursing children of consumptive

mothers, and the thorough and critical revision of the required studies in the Argentine medical schools, including in the curriculum the history of medicine and its principles, and the genetics of evolution, general physiology and biology. The executive committee of the congress was directed to compile an index of medical biography. Cordoba was selected as the place of meeting for the second national medical congress in 1920.

Letter from Vienna.—A correspondent "v. H." writes from Austria to the *Deutsche medizinische Wochenschrift* that the fine hospital which the University of Vienna organized in its buildings for wounded soldiers has been given up, the buildings being needed for teaching purposes. For two years the hospital has served as a useful and model institution, and money has been poured out freely for it, but the winter semester will open with the university in full swing. The patients in the hospital were given a gala entertainment as farewell before they were all transferred to the Grinzing barracks hospital. He relates further the organization of surgical groups to be sent from place to place at the front where they are most needed at the moment. This *Schnellhilfe im Felde* seems to be a private undertaking, but has been accepted and endorsed by the military authorities. He continues, "A new law in Austria classes habitual drunkenness and drug addiction with feeblemindedness and insanity as justifying the appointment of a guardian to take charge of the business affairs, etc. . . . Further progress has been realized in the enlargement of the training schools for nurses, founded three years ago, connected with the public hospital at Vienna and at Prague. The schools offer a two-year course with eighteen instructors from the medical faculty or the hospital force. There is also an afternoon postgraduate course, requiring several months, open to trained nurses with at least three years of practical experience. This course entitles them to a state license. . . . The authorities have sent a circular to all physicians and druggists urging special economy not only in the use of drugs but of all articles that might be used for food or for making munitions. Oil should be used sparingly and olive oil replaced with sunflower oil, starch with talcum. There is no scarcity of opium, atropin and cocain, but the price is high. Senna, cascara, aloes and rhubarb are scarce, as also caffein and quinin. The circular impresses on physicians and the public at large that drugs should be used only when it is impossible to realize the end sought by hygiene alone or associated with simple dietetic-physical measures. . . . Professor Weichselbaum reached the age limit for academic duties last year, but the time limit was extended. He has now definitely retired and Kolisko takes his place."

CANADA

Infantile Paralysis in Ontario.—The prompt steps taken by the Ontario Board of Health when infantile paralysis appeared in Montreal have resulted in a considerable reduction of cases in the province. In September there were in Ontario seventy-six cases with seven deaths; in October, thirty-one cases with seven deaths.

Hospital News.—The Canadian Hospital Commission of Canada is appointing discharge boards in different parts of Canada. A board will be appointed for each command unit. In Manitoba the board will consist of Drs. Henry H. Chown, Edwin S. Popham and Herbert P. H. Galloway; in British Columbia, Drs. Oswald M. Jones, Roderick L. Fraser and William J. C. Tomalin.——Lieut.-Col. Mackenzie A. Forbes has been appointed medical officer of the military hospitals command for Montreal. The personnel of the other boards will be announced shortly.——London, Ont., will have a permanent hospital for tuberculous soldiers returning from the front. The city council has voted a sum of $25,000, the military hospitals commission have agreed to donate another $25,000, and the provincial government of Ontario will contribute another $25,000.——Lieut.-Col. Cameron A. Warren, Toronto, has been temporarily placed in command of the Toronto Base Military Hospital.——Capt. George D. Porter, Toronto, is looking after the laboratory of the Toronto Base Military Hospital.

Personal.—Lieut.-Col. George G. Nasmith, C. M. G., chief of the Toronto Public Health Laboratories, has arrived home from France and will hereafter attend to his duties as chief analyst of Toronto. Colonel Nasmith resigned owing to indifferent health.——Lieut.-Col. Thomas B. Richardson, Toronto, has been transferred from the command of the Toronto Military Base Hospital to president of the Medical Board in Toronto.——Capts. Stuart M. Polson, Garfield Platt, and William H. Ballantyne, Vernon, Ont., with the Queen's University (Kingston, Ont.) Hospital in France, have been promoted to the rank of major.——Dr. Fred L. Grasett, Toronto, has gone to England to visit his son who is with the Canadian artillery.——Lieut. Charles F. Moore, M.D., Toronto, son of Dr. Charles S. Moore, London, Ont., who was invalided home, has recovered and returned to the front.——Of the two sons of Dr. Horace A. Yeomans, Belleville, Ont., aged 18 and 17 years, one received the Distinguished Conduct Medal last March, but was killed in action in April. The younger was awarded the Military Medal.

WAR NOTES

The New Harvard Unit.—The winter shift of the Harvard Surgical Unit, consisting of Drs. Kendall Emerson, Worcester, Francis W. Paulfrey, Boston, Paul Hector Provandie, Melrose, Frank H. Pike, Melrose, and Henry B. Potter, Wakefield, R. I., and twenty nurses, will sail from New York, November 18, to relieve an equal number of the staff now serving in the Harvard Field Hospital behind the British lines in France.

Medical Unit for Palestine.—An appeal has been made to the Jewish women of Boston for immediate contributions to help equip a medical unit to be sent to Palestine to relieve the sufferings caused by the ravages of typhus fever in that country. The British, French and Turkish governments have been persuaded by the Zionist provisional committee to lift the embargo against drugs and thus render possible the work of the unit.

The Fatalities in the War.—The editor of the *Deutsche medizinische Wochenschrift* comments on the organization at Copenhagen of a society to study the social consequences of the war, saying that the loss of human life in the war to date cannot be estimated with accuracy. "Germany is the only country," he says, "which publishes systematically reliable casualty lists, and even in these the missing form quite a large proportion. No other country but England makes any attempt to publish the casualty lists regularly. The new society issues a bulletin and this stated recently that up to July, 1916, there had been 4,631,500 killed in the war. Even if this number is somewhat too high—and more than probably the figure is too low—this shows what unspeakable misery this war of annihilation has brought to Europe even so far, and to all civilized countries."

Serbian Noncombatant Relief.—The letters received by the American Red Cross from Mr. Edward Stewart, at Belgrade, give an insight into the gratifying civilian relief activities which are being directed in Serbia. Prior to the declaration of war by Roumania, Mr. Stewart had procured 257 carloads of supplies, including eighty carloads of corn. He expected to receive sixty carloads of corn which had been purchased in Roumania by the Swiss Red Cross for distribution by the American Red Cross. Forty-six carloads of the sixty have been sent on to Dr. Edward Ryan, who is in charge of the work in the interior. He expected, furthermore, to receive twenty-five carloads of clothing and food from Switzerland. Two distributing stations for food and one for clothing are being operated. The public welfare department of the government is building a people's kitchen whose first object is to supply one meal a day to about 200 indigent persons. Clothing has already been distributed to 10,000 people and there is sufficient clothing on hand for about 10,000 more.

American Women's War Hospital.—This hospital was established by the American Women's War Relief Fund at Paignton, South Devon, England, immediately after the outbreak of the European war. At its head are many titled women of American birth. Sir William Osler is consulting physician and Maj. D. Pearce Penhallow, Boston, is chief surgeon and administrative officer of the institution. An analyzed report of the third thousand cases treated at the hospital shows that during the period from Dec. 9, 1915, to Aug. 19, 1916, there were received in the hospital 1,202 cases, of which 202 patients still remained on the date last mentioned. In addition to the treatment of every sort of wound received in war, many purely medical cases were cared for, details of which are given in the analysis. The average time in the hospital of the 1,000 patients was 33.36 days. Of 54 patients who were in the hospital ninety-eight days or over, 2 were in over ten months, 9 about eight months, 13 between six and seven months, 8 between five and six months, 6 between four and five months, and the remainder for periods varying upward from fourteen weeks.

LONDON LETTER

LONDON, Oct. 30, 1916.

The Health of London

The annual reports of the health officer of London and of the school medical officer for 1915 have just been published. The health of London during that year was below the average of recent years. This is ascribed to the number of deaths at relatively high ages due to epidemics of influenza and respiratory diseases. The marriage rate was, as stated in previous letters, the highest ever recorded. This is attributed directly to the war. The birth rate has fallen again, and was 23.6, as compared with 24.3 in 1914 and 25 in 1909-1913. The incidence of infectious disease has been low. Despite the return of convalescent soldiers and the abnormal conditions, no increase of typhoid fever or dysentery was observed. A few cases of typhus occurred, but the outbreak was quickly controlled. Measles, on the other hand, was responsible for 2,286 deaths, as against 1,376 in 1914. The fact that diarrhea and enteritis at ages from 0 to 2 fell from 3,057 in 1914 to 2,556 shows how efforts to save the children are being crowned with success. The question whether or not cerebrospinal fever is related to influenza is discussed at length. Evidence is produced to show that a close relation exists between the two. It has been suggested that the influenza attack in some persons involves the brain and cord so that the cerebrospinal disease is set up. Nearly 25 per cent. of the cases of cerebrospinal fever reported in England and Wales occurred in London. Great care was taken to prevent attacks of infectious disease, and special attention was devoted to the seamen's lodging houses in East London. Difficulty was encountered in dealing with the houses occupied by Chinamen. Examination of samples of milk showed contamination with tubercle bacilli in 6.5 per cent., as against 7.9 per cent. in 1914 and 9.9 per cent. in 1913. Schemes were initiated for maternity and child welfare work. The report of the school medical officer shows that the prosperity which has come to some poor homes on account of the war is reflected in the fact that while 3.9 per cent. of children had insufficient clothing or footgear in 1914, only 2.6 per cent. were found in this condition last year. The percentage for malnutrition fell in the same period from 9.4 to 6.6 per cent. An interesting experiment in early notification of measles by telephone was tried. In spite of the general epidemic affecting all districts of London, the areas in which the special arrangements were in operation were less seriously affected.

The British Journal of Ophthalmology

The earliest journal of ophthalmology published in this country was the *Royal London Ophthalmic Hospital Reports*, which appeared in 1852. The title was somewhat misleading, as abstracts from foreign literature were given as well as reports from this hospital, which has ever been the center of British ophthalmology. In 1864 the abstracts were discontinued. In 1882 appeared the *Ophthalmic Review*, which took up this work. In 1903 another ophthalmic journal, the *Ophthalmoscope*, appeared. For some time ophthalmic surgeons have felt that it would be a great advantage if these three journals were merged into one. At a meeting it has been decided to do this and to publish in January, 1917, the new journal under the title of the *British Journal of Ophthalmology*. The editor will be Mr. Sydney Stephenson, who has edited the *Ophthalmoscope* since its foundation. Subsequent numbers will be published monthly.

The Control of Venereal Diseases

It is well known that the ravages of venereal diseases are always increased by war. The growing public attention which has been given to this subject in recent years has therefore been stimulated. A meeting has been held at the Mansion House to consider the urgent problem of national health. The large hall was crowded with representatives of the medical profession, municipal and local government authorities, the governing bodies, medical staffs, and matrons of the London hospitals and religious and social organizations. Mr. Walter Long, president of the Local Government Board, said that it had become impossible any longer to conceal from the public that these diseases were terrible in their nature and almost overwhelming in the effect they had on the health and strength and the very life of the people. It was essential that they must be eradicated. He was confident that the new year would see a scheme for London ready in all its details. In many other local areas, too, work was proceeding rapidly, and a real attempt was being made to deal in an effective way with these scourges. They were told in some quarters that all plans would fail until compulsory notification was adopted and there was compulsory treatment. But the royal commission (whose report has been given in a previous letter to THE JOURNAL), had fully considered the question and did not recommend compulsory notification and treatment. He had no prejudice in this matter, and if he thought compulsory notification was the right thing, he would do his best to secure it.

Mr. Herbert Samuel, the home secretary, said that the question arose whether or not more active means should be adopted to limit prostitution. The action of the police was limited by restrictions imposed by law, and it was doubtful whether Parliament would consent to extend their powers of arresting women in the streets because of the possibility of grave errors, such as had occurred some years ago. The government was anxious to encourage the employment of women police and women patrols whose work was calculated to be of great benefit.

On the other hand, a letter signed by leading women, including physicians, the wives of public men, and social workers, has been published in the press advocating notification and compulsory treatment as "the obvious remedy for every contagious disease."

The Treatment of Tuberculosis

The annual report of the Local Government Board for 1915-1916 states that notwithstanding the difficulties created by the war, progress has been made with the development of approved schemes for the treatment of tuberculosis, and a certain number of institutions, the erection of which had been undertaken previous to the war, have been completed and brought into use. Up to April 30, 1916, the board had approved, under the national insurance act, 288 residential institutions, containing 11,227 beds for the treatment of tuberculosis. Of this number, 130 institutions, containing 5,258 beds, had been provided by local authorities, and 158 institutions, containing 3,969 beds, by voluntary bodies. In addition, the board had approved 355 dispensaries for the treatment of tuberculosis, 319 of which have been provided by local authorities.

Inoculation Against Typhoid Fever in the Army

The following are the latest official figures on this subject: Up to Aug. 25, 1916, 1,501 cases were finally diagnosed as typhoid fever among the British troops in France, 903 among inoculated men and 508 among uninoculated men. There were 166 deaths, 47 of which were among the inoculated and 119 among the uninoculated. To the same date there were 2,118 cases of paratyphoid fever, 1,968 among inoculated men, and 150 among men who had not been inoculated. There were 29 deaths, 22 of which were among the inoculated and 7 among the uninoculated.

Decline of Vaccination

It may be assumed, says the annual report of the Local Government Board, that more than half the children now born escape vaccination. By far the greater proportion unvaccinated are exempted by a declaration of conscientious objection made by their parents. The percentage so exempted in 1913 was 35.

Death of Sir Joseph Beecham

Sir Joseph Beecham, the son of Thomas Beecham, who founded the great pill making business at St. Helen's, Lancashire, has died. Born in 1848, he was prodigiously wealthy from his pill business, and financed various schemes for popularizing opera in England. His father began life by selling his pills in the market place of St. Helens. One day a woman interrupted his speech by shouting out that his pills were "worth a guinea a box," and he at once replied that he would put that phrase on every box he made in future, which he did. Beecham erected a shed in the yard behind his house where the manufacture of the pills took place. As the demand increased, he had the house pulled down and a factory was built on the site, to be succeeded later on by the present palatial buildings. The story is still told in the town of an incident that occurred in a school. An inspector, examining a class, asked the pupils what St. Helens was noted for. "Please, sir" said one aspiring boy, "for Beecham's pills." When the story reached the ears of the great pill-maker he made the boy a present of a watch. The extent of the advertising resorted to by both the founder and the late Sir Joseph Beecham is well known. Nearly every big firm that

advertises largely employs an agent, but the Beechams have always kept this part of their business, so far as the United Kingdom is concerned, in their own hands. Their foreign advertising is, however, entrusted to a London firm. It has been computed that a sum of about $400,000 is spent in this way every year, $300,000 of it in this country alone.

PARIS LETTER

PARIS, Oct. 26, 1916.

The War

SENDING OF ALL MEDICAL ORDERLIES TO THE FRONT

Acting on an agreement between the general headquarters and the direction of the health service, the minister of war has just decided to send to the front all those medical orderlies at present occupied in the rear, up to the class of 1900 (that is, men up to 36 years of age). These men will replace orderlies, ambulance attendants and stretcher bearers, who will be sent into the infantry or the artillery. In the medical formations of the rear, the men sent to the front will be replaced by women, by persons discharged from the army, by partially disabled men, or by volunteers. It is estimated that 40,000 men will be released for combatant service by the adoption of this measure, the application of which has already commenced.

A MEDICAL CORPS FOR ROUMANIA

La Société Française de Secours aux blessés militaires has sent to Roumania a sanitary corps composed of two surgeons, a physician, an assistant physician and nine orderlies belonging to the society. When they arrive at Bucharest, these persons will be employed in a hospital already chosen by the French minister, and will work under the auspices of the legation. Ample equipment sent at the same time will allow of installing this hospital under the most favorable conditions.

THE RIGHTS OF THE WOUNDED

In connection with two interpellations on the rights of the wounded, the Chamber of Deputies discussed at length the question whether the military medical authorities have the right to impose a particular treatment on a wounded man, and whether the military authorities have the right to punish refusal. To those who would push to the extreme the doctrine of individual liberty, Dr. Gabriel Maunoury, deputy for the department of Eure-et-Loir, speaking as a delegate of the commission on hygiene of the chamber, put forward the just objection that not only the interests of the wounded man, but also those of the nation must be taken into account, and that, to the latter, it is important that the wounded should, as far as possible, be cured and rendered able to take their places in the ranks. M. Justin Godart, undersecretary of state for the health service, pointed out that it was impossible to leave this decision to the absolute discretion of the wounded man; the contrary doctrine would conflict both with the national interest and with that of the wounded man himself. Finally the chamber, by 354 votes against 5, passed the following resolution:

> The chamber, approving the declaration of the government, is confident that it will assure the treatment of the wounded in such a way as to reconcile their rights and their liberty with the general interest of the national defense; and affirming that all soldiers, without distinction of rank or social position, shall be submitted to the same treatment, as regards medical or surgical measures, passes to the order of the day.

EXTRACTION OF A SHELL FRAGMENT FROM THE DORSAL REGION

Professor Quénu exhibited to the Société de chirurgie de Paris a shell fragment weighing 385 gm. which had lodged in the back of a soldier without killing him. It was placed transversely between the shoulder blades, one extremity, slightly more pointed, being turned to the right. The first attempts at removal failed. Success followed median dorsal incision exposing the broadest part of the projectile.

FOR BLIND SOLDIERS

L'Association Valentin Haüy for the welfare of the blind, founded in 1899, has just received from a manufacturer of Isère, who desires to remain anonymous, a gift of 35,000 francs ($6,755), representing his share in the profits of a munition factory.

AN INDIA RUBBER EYE FOR THE WOUNDED

The large number of cases of war wounds in which the enucleation of one eye has to be performed has led MM. Lemaitre and Teuillières to improve the technic of ocular prothesis. Before the war, the development of this class of work was practically restricted to fitting an artificial eye on a stump skilfully prepared by the surgeon. This procedure has proved absolutely insufficient in the presence of the frequent great destruction involving the eyeball and the orbit, and which does not admit of adapting in the orbit a piece selected from a standardized series. In these cases it is necessary to prepare an eye especially for each wounded, so that it may be sufficiently esthetic, may follow the movements of the relics of stumps, and be on the same plane as the other eye. To obtain this result, MM. Lemaitre and Teuillières studied first the making of casts of the orbital cavity. They had to give up the idea of employing substances melting at a temperature slightly higher than that of the body, because with them it was not possible to count on obtaining faithful casts. Recourse was then had to plaster, or rather, to alabaster, which the mucosa tolerates very well. In order that the mold shall not require retouching, they use a special impression tray provided with a small funnel having a large aperture for the admission of liquid plaster. Opposite this funnel is a convex surface intended to reproduce the internal surface of the eyelids and maintain the latter in the position which they originally occupied over the eyeball. When the eyelids are kept in position in this way, the liquid plaster easily fills the whole of the orbital cavity and takes the place formerly occupied by the eyeball and its appendages. The impression reproduces faithfully the details of the orbit. From this mold a cast is made in caoutchouc. The anterior part is made with vulcanite, and on this is placed the "façade" reproducing the aspect of the eye. This will be made either in enamel or in some other suitable method. On this rigid part, the retaining action of the eyelids is exerted. The posterior and lateral parts are made in soft rubber. There is a space between the anterior and posterior walls which is occupied by air. It will be seen that this apparatus is very elastic, owing to its pneumatic construction, and follows without injury the irregularities of the orbital cavity, transmitting all of the movements. Its suppleness permits it to maintain an elastic contact between the eyelids and the back of the orbital cavity. This apparatus has, further, the advantage of being unbreakable.

Marriages

HORACE PERKINS MAKECHNIE, M.D., West Somerville, Mass., to Miss Gertrude M. Janes of Somerville, Mass., November 1.

CHARLES ARTHUR ELLIS, M.D., Denver, to Mrs. Minerva Cooley Winter of Mayfield, Ky., at Colorado Springs, October 26.

DELL LOU GROTHAUS, M.D., Delta, Iowa, to Miss Jennie McArthur of Mason City, Iowa, at Marion, Iowa, November 1.

CARL FERDINAND BOOKWALTER, M.D., Chicago, to Miss Emma Ellis Boyd, at Crown Point, Ind., November 3.

ALLTON LAWRENCE SHERMAN, M.D., to Miss Ethel Agnes Yoemans, both of West Orange, N. J., October 30.

LOUIS HENRY RITZHAUPT, M.D., Washington, D. C., to Miss Lillian Mae Harris of Seymour, Wis., recently.

MARCENUS C. MASON, M.D., Rochester, N. Y., to Miss Matilda L. Starke of New York, November 1.

LEO LOUIS ELLIOTT, M.D., Rosebud, S. D., to Miss Mary Head of Bemidji, Minn., November 2.

BARCLAY WILKINSON, M.D., to Mrs. Laura Harvey Moore, both of Chicago, about October 30.

JOHN FRANKLIN, M.D., San Jose, Calif., to Miss Louisa Getz of San Francisco, October 2.

WELCOME WALTER WOOD, M.D., to Miss Grace Brown, both of San Francisco, September 15.

H. WILLIAMS SMITH, M.D., to Miss Estelle Monroe, both of Crookston, Minn., October 24.

KARL F. M. SANDBERG, M.D., to Mrs. Emilia P. Peterson, both of Chicago, November 4.

FRANK A. CRAIG, M.D., to Miss Florence P. Frismuth, both of Philadelphia, November 2.

EDWIN B. WELDON, M.D., to Miss Helen L. Abberton, both of Bridgport, Conn., June 17.

HARRY LEVI DAY, M.D., to Miss Nola M. Jackson, both of Bluffs, Ill., October 25.

Deaths

Albert Philip Ohlmacher, M.D., Detroit, Northwestern University Medical School, Chicago, 1890; aged 51; a Fellow of the American Medical Association and a member of the American Association of Pathologists and Bacteriologists, National Association for the Study of Epilepsy and National Association for the Study and Prevention of Tuberculosis; a prolific writer on pathology and epilepsy; professor of comparative anatomy and embryology in the College of Physicians and Surgeons, Chicago, from 1891 to 1894 and in the Ohio Wesleyan University, Cleveland, from 1894 to 1897; director of the Pathological Laboratory of the Ohio Hospital for Epileptics, Gallipolis, from 1897 to 1901; then for a year professor of pathology in his alma mater; from 1902 to 1905 superintendent of the Ohio Hospital for Epileptics, Gallipolis, and afterward a practitioner of Detroit, where he made a specialty of epilepsy and vaccine therapy; died at his home in Detroit, November 10.

William Judkins Conklin, M.D., Dayton, Ohio; Medical College of Ohio, Cincinnati, 1868; aged 71; formerly a Fellow of the American Medical Association; a member of the Ohio State Medical Association, president in 1890 and secretary in 1872; a member of trustees of the Ohio State Hospital for two years; from 1875 to 1876 a member of the faculty of the Starling Medical College, Columbus; for many years a member of the staff of St. Elizabeth's and the Miami Valley hospitals; for eighteen years president of the board of trustees of the Dayton Public Library and Museum, and for several years a member of the board of education; a director of the Merchants' National Bank, and one of the most widely known physicians of the Miami Valley; died at his home, October 31.

Gilman Corson Dolley, M.D., M. R. C., U. S. Army; Medico-Chirurgical College of Philadelphia, 1907; aged 36; formerly a Fellow of the American Medical Association; a member of the Association of Military Surgeons of the United States; who entered the government service in 1909 as acting assistant surgeon and was bacteriologist to the Post Hospital, Department of the Missouri, Fort Leavenworth, Kan., and later on duty at Santo Domingo, and for the last year resident physician at the United States Leprosarium, Culion, Palawan, P. I.; died in Manila, October 21, from pneumonia.

Oliver C. Ormsby, M.D., Rexburg, Idaho; Rush Medical College, 1870; aged 73; formerly a Fellow of the American Medical Association; for many years a druggist and practitioner of Utah; city physician of Rexburg and county physician of Madison County; who served as surgeon during one of the Indian campaigns in the West; died at his home, October 26, from cerebral hemorrhage.

Harry W. Weyant, M.D., Philadelphia; University of Pennsylvania, Philadelphia, 1895; aged 47; a Fellow of the American Medical Association; a specialist on diseases of the eye, ear, nose and throat; for twenty-one years police surgeon of the tenth district; assistant in the eye department of the Protestant Episcopal Hospital; died at his home, November 2, from pneumonia.

Louis Edward Gott, M.D., Falls Church, Va.; University of Maryland, Baltimore, 1861; aged 76; a member of the Medical Society of Virginia; surgeon of the Forty-Ninth Virginia Regiment and the Twenty-First Georgia Regiment during the Civil War; died in Georgetown University Hospital, Washington, October 29, from prostatic disease.

Romeo Orpheus Keiser, M.D., Columbia, Ohio; Ohio Medical University, Columbus, 1898; Cleveland-Pulte Medical College, Cleveland, 1899; aged 46; formerly secretary and later president of the Homeopathic Medical Society of Ohio and a member of the faculty of his alma mater; died at his home, November 1.

James M. Coyle, M.D., Nashville, Tenn.; University of Nashville, Tenn., 1881; aged 66; a member of the Mississippi Valley Medical Association, and a resident of Nashville for nearly half a century; for several years major surgeon in the Tennessee National Guard; died at his home, October 21.

Andrew L. Marugg, M.D., Specht's Ferry, Iowa; Northwestern University Medical School, Chicago, 1898; aged 42; a Fellow of the American Medical Association; for many years a practitioner of Sherrill's Mound, Iowa; died in Mercy Hospital, Dubuque, Iowa, October 31, from pneumonia.

Henry L. Gosling, M.D., Washington, D. C.; Columbian University, Washington, D. C., 1886; aged 61; assistant chief of the Division for Operation of the Coast Guard; for forty-one years in the federal service; died at his home, November 1.

Edwin A. Lex, M.D., Irvington, Ky.; Kentucky University, Louisville, 1903; aged 40; for several years a druggist and practitioner of Louisville; died at St. Joseph's Infirmary, Louisville, October 26, from typhoid fever during convalescence after an operation for appendicitis.

Joseph Hammond Huston, M.D., Clintondale, Pa.; Jefferson Medical College, 1866; aged 78; a member of the Medical Society of the State of Pennsylvania; for forty-four years a practitioner of Clintondale; died in the Lock Haven Hospital, October 26, from disease of the bladder.

William Guy Frierson, M.D., Shelbyville, Tenn.; University of Nashville, Tenn., 1897; aged 41; formerly a Fellow of the American Medical Association; formerly professor of osteology in his alma mater and health officer of Shelbyville; died at his home, October 21, from nephritis.

Price Patterson, M.D., Maysville, Okla.; Memphis (Tenn.) Hospital Medical College, 1901; aged 53; a Fellow of the American Medical Association; was shot and killed by an Indian citizen of Purcell, Okla., at Maysville, October 28, during a quarrel over domestic affairs.

John Harrison Oatley, Harristown, Ind. (license, Indiana, 1897); aged 86; an honorary member of the Washington County (Ind.) Medical Society, and once a representative from the county in the state legislature; died at his home, October 24, from cerebral hemorrhage.

George Washington Kerr, M.D., Fayetteville, Ark.; University of Michigan, Ann Arbor, 1874; aged 74; first lieutenant, One Hundred and Fifty-Second Illinois Volunteer Infantry during the Civil War; died near his home, October 25, from heart disease.

David Johnson Culver, M.D., Harrisville, N. Y.; University of Vermont, Burlington, 1881; aged 60; a Fellow of the American Medical Association; for more than thirty years a practitioner of Harrisville; died at his home, October 29, from arteriosclerosis.

John B. Armstrong, M.D., Chicago; New Orleans School of Medicine, 1869; aged 69; formerly a Fellow of the American Medical Association; a member of the pension board of Chicago for twenty-one years; died at his home, November 8, from heart disease.

Henry Jonathan Dearborn, M.D., Mount Sterling, Ill.; Rush Medical College, 1888; aged 50; formerly a member of the Illinois State Medical Society; coroner of Brown County for two terms; died at his home, October 29, from cerebral hemorrhage.

Elmer G. Myers, M.D., Canton, Ohio; Starling Medical College, Columbus, Ohio, 1889; aged 53; consulting surgeon to the Aultman Memorial and Ingleside hospitals, Canton, Ohio, died at his home, November 4, from rheumatic endocarditis.

William Henry Conibear, M.D., Lakeland, Fla.; Rush Medical College, 1876; aged 72; a member of the Illinois State Medical Society and for many years a practitioner of Morton, Ill.; died at his home, October 25, from carcinoma of the liver.

Lynn A. Pickering, M.D., Aberdeen, S. D.; Baltimore Medical College, 1898; aged 46; a Fellow of the American Medical Association; is believed to have been drowned while hunting, near Aberdeen, November 3.

Allen Jefferson Garrett, M.D., Tallassee, Ala.; University of Alabama, Mobile, 1893; aged 54; formerly a member of the Medical Association of the State of Alabama; died at his home, July 16, from cirrhosis of the liver.

Isaac A. Dail, Harriman, Tenn. (license, Tennessee, 1889); aged 60; for two terms a member of the state legislature from Roane County; died at his home, near Union Cross Roads, October 29, from rheumatic endocarditis.

Neal L. Burgess, M.D., Sumner, Texas; Memphis (Tenn.) Hospital Medical College, 1909; aged 39; a member of the State Medical Association of Texas; died at his home, November 1, from cerebral hemorrhage.

Moses R. Coates, M.D., McKeesport, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1893; formerly a member and chairman of the select council of McKeesport; died at his home, October 20.

Frank Duane Maine, M.D., Springfield, Mass.; New York Homeopathic Medical College, New York, 1872; aged 77; a veteran of the Civil War; died in the Hampden Hospital, Springfield, October 29.

Marvin Fisher Smith, M.D., Hampton, N. H.; Dartmouth Medical School, Hanover, N. H., 1883; aged 64; formerly a

member of the New Hampshire Medical Society; died at his home, October 31.

Peter B. Spiron, M.D., Collinsville, Ill.; University of Bucharest, Roumania, 1890; National Medical University, Chicago, 1898; aged 50; was found dead in his office, November 4.

John W. Webster, M.D., Siloam Springs, Ark.; Missouri Medical College, St. Louis, 1884; aged 69; a veteran of the Civil War; for many years a druggist; died at his home, October 21.

Henry D. Long, M.D., New York; Johns Hopkins University, Baltimore, 1903; aged 40; a Fellow of the American Medical Association; died at his home, October 22, from septicemia.

John Saltenberger, M.D., Millstadt, Ill.; Washington University, St. Louis, 1864; aged 84; a veteran of the Civil War; died at his home, near Millstadt, October 20, from heart disease.

John F. Maddox, M.D., Orlando, Fla.; Eclectic Medical Institute, Cincinnati, 1877; aged 71; died at the home of his daughter in Edinburg, Ind., October 18, from cerebral hemorrhage.

Wade H. Chase, M.D., Rutland, Ohio; Starling Medical College, Columbus, Ohio, 1897; aged 56; died at his home, October 8, from carcinoma of the mouth and throat.

Julia A. W. Winslow, M.D., Rockland, Mass.; New England Female Medical College, Boston, 1866; aged 90; died at her home, August 18, from arteriosclerosis.

Horace William Johnson, M.D., Little Rock, Ark.; Northwestern Medical College, St. Joseph, Mo., 1886; aged 64; died in a hospital in Little Rock, October 14.

Joshua Simon, M.D., Rome City, Ind.; Curtis Physio-Medical Institute, Marion, Ind., 1889; aged 68; died at his home, October 19, from cerebral hemorrhage.

Abner Hayward, M.D., Mount Clemens, Mich.; Cleveland University of Medicine, 1866; aged 86; died at his home, October 28, from cerebral hemorrhage.

Julius D. Abbott, M.D., Bethel, Ohio; Cincinnati College of Medicine and Surgery, 1874; aged 71; died in Christ Hospital, Cincinnati, October 22.

Edward Lummis Diament, M.D., Bridgeton, N. J.; Baltimore Medical College, 1897; aged 44; died at his home, August 2, from heart disease.

William W. McMann, Gardner, Ill. (license, Illinois, years of practice, 1878); aged 78; a veteran of the Civil War; died at his home, October 24.

John T. Dunn, M.D., Pasadena, Calif.; University of Minnesota, Minneapolis, 1904; aged 37; formerly of Albert Lea, Minn.; died, October 26.

Frank Herrick Green, M.D., Louisville, Ky.; University of Louisville, 1899; aged 46; formerly a druggist; died in Perryville, Ky., October 26.

Emery G. Drake, M.D., Brooklyn; Long Island College Hospital, Brooklyn, 1874; aged 64; died at his home in Barry, Brooklyn, October 29.

Hiram M. Winn, M.D., Sterling, Okla.; College of Physicians and Surgeons, Keokuk, Iowa, 1892; aged 64; died at his home, October 16.

William G. Du Bois, M.D., Camden, N. J.; Hahnemann Medical College, Philadelphia, 1880; aged 59; died at his home, October 28.

Leo Dann, M.D., New York; New York University, New York, 1885; aged 77; died at his home, October 20, from cerebral hemorrhage.

Asa M. Stackhouse, M.D., Moorestown, N. J.; Hahnemann Medical College, Philadelphia, 1868; aged 72; died at his home, October 6.

William David Aldrich, M.D., Albany, N. Y.; Albany Medical College, 1910; aged 33; a specialist in urology; died, September 28.

Peter J. McCahey, M.D., Philadelphia, Jefferson Medical College, 1885; aged 60; died at his home, October 22, from heart disease.

Noah Webster Spring, M.D., Columbus, Ohio; Medical College of Ohio, Cincinnati, 1869; aged 69; died at his home, October 12.

John D. McCollum, M.D., Alpharetta, Ga.; Atlanta (Ga.) Medical College, 1884; aged 55; died at his home, October 16.

Marie F. Rose, M.D., Harvey, Ill.; Hahnemann Medical College, Chicago, 1896; died at her home, October 11.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

HUMAN EASE

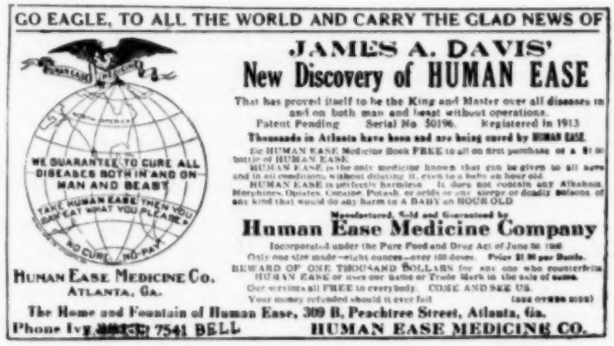
Another Fraud is Denied the Use of the Mails

"Human Ease" was a cure-all sold under preposterously false claims by one James A. Davis who did business under the trade name "Human Ease Medicine Company," Atlanta, Ga. On Sept. 12, 1916, Davis was called on by the federal authorities to show cause why a fraud order should not be issued against his company. Davis made no answer to the charges; neither did he deny the truth of them or offer any evidence to offset them. On the date set for the hearing William M. Smith of Atlanta appeared as counsel for Davis.

The Solicitor for the Postoffice Department in his memorandum for the postmaster-general recommending the issuance of a fraud order in this case declared the facts to be as follows:

THE GOVERNMENT CASE

"Respondent obtains remittances of money through the mails from various persons in payment for a preparation known as 'Human Ease.' The claims made for this prepara-


GO EAGLE, TO ALL THE WORLD AND CARRY THE GLAD NEWS OF
JAMES A. DAVIS'
New Discovery of HUMAN EASE
That has proved itself to be the King and Master over all diseases in and on both man and beast without operations.
Patent Pending Serial No. 50196. Registered in 1913
Thousands in Atlanta have been and are being cured by HUMAN EASE.
Manufactured, Sold and Guaranteed by
Human Ease Medicine Company
Incorporated under the Pure Food and Drug Act of June 30, 1906
Only one size made—eight ounces—over 100 doses. Price $1.00 per Bottle.
REWARD OF ONE THOUSAND DOLLARS for any one who counterfeits HUMAN EASE or uses our name or Trade Mark in the sale of same.
Our services all FREE to everybody. COME AND SEE US.
Your money refunded should it ever fail.
(SEE OTHER SIDE)
WE GUARANTEE TO CURE ALL DISEASES BOTH IN AND ON MAN AND BEAST
TAKE HUMAN EASE THEN YOU CAN EAT WHAT YOU PLEASE
NO CURE NO PAY
HUMAN EASE MEDICINE CO.
ATLANTA, GA.
The Home and Fountain of Human Ease, 309 B, Peachtree Street, Atlanta, Ga.
Phone Ivy 7541 BELL
HUMAN EASE MEDICINE CO.

tion in the treatment and cure of all diseases are so astounding that a very brief statement of a few of them as disclosed by the evidence will suffice to establish the fraudulent character of the scheme. This preparation has been analyzed by Dr. W. S. Hubbard of the Bureau of Chemistry, Department of Agriculture, and a report made to this office showing the chemical analysis to be as follows:

Lard	95.5 per cent.
Sodium bicarbonate (baking soda)	1.6 per cent.
Sodium sulphate (Glauber's salts)	0.2 per cent.
Potassium nitrate (Salpetre)	1.9 per cent.

The ointment is flavored with oil of sassafras.

"According to the representations made by respondent there is no disease that this preparation will not cure. The cure of all diseases is guaranteed by him in the following terms:

'We guarantee to cure all diseases both in and on man and beast.'

"Scores of diseases are enumerated in the booklet which is distributed broadcast to the public through the mails by him, all of which his guarantee covers. For the purpose of showing the obvious absurdity of the claims and the patent falsity of the representations, a few of these diseases are taken at random from the booklet containing the whole list of diseases whose cure is guaranteed, as follows:

Tuberculosis,	Syphilis,	Rheumatism,
Diphtheria,	Scarlet Fever,	Smallpox,
Pellagra,	Paralysis,	Obesity,
Bright's Disease,	Heart Disease,	Mad dog bites, and
Stricture,	Cancer,	Ingrowing nails.
Diabetes,		

"A review of the booklet shows that it contains a very large number of false claims and representations. This office

has seldom seen a booklet so filled with fraudulent representations. It has been frequently shown in hearings before this office by the testimony of experts in the treatment of various diseases that many of the diseases which the respondent mentions in this booklet and guarantees to cure are incurable, and human experience serves to confirm the truth of such testimony. The evidence in this case shows that the respondent is not a physician; that he has had no training which would qualify him to diagnose and treat diseased conditions; that his educational attainments are strictly limited, and that the preparation furnished by him cannot and does not relieve or cure many of the diseases for which it is recommended and is without value in the treatment of such diseases."

The federal authorities issued a fraud order on Oct. 19, 1916, denying the use of the mails to the Human Ease Medicine Company (not to Davis, himself) on the ground that it had been obtaining money by means of false and fraudulent pretenses, representations and promises.

MORE MISBRANDED NOSTRUMS

A. D. S. COD LIVER OIL COMP.

"A. D. S. Cod Liver Oil Comp." was one of the preparations put out by the American Druggists' Syndicate, a cooperative concern to which druggists belong who wish to share in the profits of the manufacture as well as of the sale of "patent medicines." The preparation, which admittedly contained 17 per cent. alcohol, was marketed under such claims as:

"A Sovereign Remedy in Pulmonary Tuberculosis or Consumption of the Lungs."
"The Great Curative Value of this Preparation has been demonstrated by the Most Eminent Physicians, who regard it as a powerful strength builder, that gives the system force to resist the Invasion of Bacilli."

These statements the federal officials charged were false and misleading because "the said article and drug was not a sovereign remedy in pulmonary tuberculosis or consumption of the lungs, was not a powerful strength builder, and possessed no properties such as would give the system force to resist the invasion of bacilli." The government officials also charged that the statement that the product was a "Preparation of the Active Principles of Pure Norwegian Cod Liver Oil" was false and misleading because the preparation "did not contain cod liver oil in any appreciable or measurable quantity, and did not possess the active principles of cod liver oil." The company first pleaded not guilty but later changed its plea to guilty. The penalty assessed by the court against this wealthy corporation for selling an alcoholic nostrum under the representation that it was a "sovereign remedy" for consumption was $5.—[*Notice of Judgment No. 4033.*]

A. D. S. PEROXIDE TALCUM ANTISEPTIC AND DEODORANT

"A. D. S. Peroxide Talcum Antiseptic and Deodorant," another preparation of the American Druggists' Syndicate, was sold under such claims as:

"This powder contains a peroxid."
"The wonderful antiseptic and germicide."

A sample of the product was examined by the Bureau of Chemistry which reported that the preparation "contained no antiseptic properties" and that analysis "failed to reveal the presence of either peroxids or antiseptics." In view of these findings the federal officials charged that the stuff was misbranded because of the false and misleading claims made therefor. The company withdrew its first plea of not guilty and entered a plea of guilty and the court imposed a fine of $25.—[*Notice of Judgment No. 4056.*]

DR. KING'S ROYAL GERMETUER

"Dr. King's Royal Germetuer" was put on the market by the Ellis-Lillybeck Drug Company, Memphis, Tenn., under such claims as:

"Germetuer is, as its name indicates, a germ destroyer. . . . It destroys all disease germs with which it comes in contact. . . ."
"Typhoid fungus, small pox fungus and cholera fungus have been discovered. . . . Germetuer kills these microbes and restores the patient to health."
"It will also permanently cure indigestion. . . ."
"It purifies the blood. . . ."
"For Female Diseases it is all that can be desired—pleasant, safe and unfailing."
"It cannot be surpassed as a cure for diseases of the Kidneys and Bladder. It is a great conqueror of Malaria. Cures promptly Swamp Fever, Chagres Fever, Jaundice and all Malarial Troubles."

Dr. King's Royal Germetuer was analyzed by the federal chemists who reported that it consisted essentially of 98 per cent. water and 2 per cent. sulphuric acid, the mixture being saturated with hydrogen sulphid. It is not surprising that the federal officials charged that this malodorous mixture was misbranded and that the claims quoted above and other similar ones were "false and fraudulent" and had been made by the Ellis-Lillybeck Drug Company "knowingly and in reckless and wanton disregard of their truth or falsity." The company pleaded guilty and was fined $25 and costs.—[*Notice of Judgment No. 4113.*]

JOHNSON'S CHILL AND FEVER TONIC

"Johnson's Chill and Fever Tonic" was put on the market by a company of that name in Savannah, Ga. Some of the claims made for it were:

"A Guaranteed Remedy for the following diseases: . . . Dengue Fever, . . . Typhoid Fever, . . . Measles, . . . La Grippe."
"We Believe this is The World's Greatest Fever Medicine."

The claim was also made, by implication, that the nostrum was a "cure" for typhoid fever. When analyzed by the federal chemists it was reported to be a watery solution of Epsom salts and cinchonin hydrochlorid. The therapeutic claims were declared false and fraudulent and applied to the article knowingly and in wanton and reckless disregard of

JOHNSON'S
CHILL AND FEVER TONIC
Is the one only dependable remedy for "chills" in all forms mild or severe. It cures to stay cured, price 25c and 50c.

their truth or falsity. The company entered a plea of *nolo contendere* and was fined $25 and costs.—[*Notice of Judgment No. 4150.*]

WHAT AILED HIM?

A druggist, who prefers that his name and address be withheld, writes that he was called on to fill the following prescription:

℞ Hydrarg. chlor. mite ..... gr. j.
Pottassi iodidi ..... ʒ iv.
Pottassi bromidi ..... ʒ iij.
Pottassi cit ..... ʒ v.
Tr. aconit. ..... ʒ ii.
Vini ipecac ..... ʒ j.
Aqua chloroform ..... q. s. ad ʒ iij.

M. et sig: Teaspoonful in water three times a day after meals, and, if necessary, at bedtime.

The druggist writes further: "We should be glad to have you guess what was wrong with the patient. We should not like to go down as criticising our physicians, but would like for you to have a shot at them. I have now had about twelve years' experience behind the counter and am just getting to where I am afraid to turn them loose. There are times when I feel that the patient is not only wasting his money but ruining his stomach also. But what can the poor country druggist do? He is dependent on the physician for his prescription work. I sometimes fear that we don't have the backbone that we should have."

We hesitate to risk our reputation as a guesser by accepting our druggist friend's dare. But not to block the game, we will go this far: If anything new was wrong with the patient after he took the medicine we should diagnose the case as one of Misplaced Confidence. Whether this was the physician's misplaced confidence in drugs, or the patient's misplaced confidence in the physician is a question which we may safely leave for others to settle according to their own liking.

Correspondence

"The Important Factor in Dealing with Tuberculosis" — A Protest

To the Editor:—I wish to commend the article with this title by Dr. George Thomas Palmer (The Journal, Oct. 28, 1916, p. 1321), and also to protest against the crime, as I choose to designate it, of certain members of the medical profession in sending tuberculous patients into this western country with such instructions as these:

"Avoid sanatoriums, as contact with other tuberculous persons is depressing and furthermore dangerous because you may get a further infection from other patients.

"Do not go around a doctor's office, as there is not a specific cure for tuberculosis and you will only be wasting your money.

"Report to me occasionally, and I can advise you from here.

"Get out into the open and 'rough it' on a horse, in a wagon, in camp, or get you a job on a stock ranch herding cattle on a bronk, etc."

I know some will smile and think this is a joke, but too many victims of the "white plague" with whom I have come in contact while "chasing the cure" myself have corroborated what I have written. With the well known fact staring us in the face that rest is the most essential thing in the treatment of tuberculosis, why do they do it?

When the tuberculous person gets off the train in the West he has some part of the following equipment, according to his taste in the sports: a shotgun; an express rifle for big game; bag of golf sticks; tennis racket and shoes; fishing outfit; khaki clothing, etc., to match; riding habits, etc. This is not an exaggeration, as I have seen such outfits many times, often after the owner had crossed over the "great divide."

They try out this equipment and find it does not lead to a restoration of health except in a few instances. They then go to the cities; rent a room down town; go out to restaurants for meals when they feel like it; hang around saloons and drink beer and whisky to "build them up," and loaf around the parks, pool rooms, tobacco stands, etc., until, in about 75 per cent. of cases, they fall by the wayside unable to go further. A physician is called to make the last moments comfortable, and a minister to administer the last rites, followed by the undertaker, who gently breaks the news to the folks back home by wire.

Since the physician advised the patient to report progress to him, to be consistent the body should be shipped back to the physician for further advice. It must be admitted, however, that the treatment prescribed by some western physicians outside of the sanatoriums is in no wise an improvement on the advice given by his eastern colleague.

J. A. Van Horn, M.D., Roswell, N. M.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

SPLENECTOMY

To the Editor:—1. Has it not been conclusively proved that the spleen is not essential to life? 2. What is the average duration of life after the spleen is removed? What is the longest period man has survived after splenectomy? 3. Granting that the spleen is diseased, other remedial measures failing, is not splenectomy a justifiable and approved measure?

J. L. Dach, M.D., Reeder, N. D.

Answer.—1. The spleen is not essential to the life of a person in the sense that it can be removed and that person continue to live in apparent health. It should not be inferred, however, that the spleen has no useful function in the body, but simply that this function may largely be taken up by other organs after the spleen is removed.

2. Persons have lived for many years after the spleen has been removed. Should no other disease be present, a person whose spleen has been removed would probably live out his ordinary expectancy.

3. Splenectomy is a justifiable operation in many diseases in which it is thought that the spleen is concerned in the disease process. In some of these conditions, splenectomy seems to have been beneficial; in others, it has not yet been proved that splenectomy is followed by any permanent favorable result. It is probable that in these cases the spleen is not the site of the primary cause of the disease.

SINUSOIDAL ELECTRIC APPARATUS

To the Editor:—Can you give me any information regarding the Ultima No. 3 sinuistat, manufactured by the Ultima Physical Appliance Company of 136 West Lake Street, Chicago? Does it give a true sinusoidal current? Has sinusoidal therapy any real merit? If so, in what conditions is its use beneficial?

Joseph E. Golding, M.D., Roslyn Heights, N. Y.

To the Editor:—What is the present status of the sinusoidal current as applied in treatment? Is there sufficient evidence that it is worth while in the treatment of diseases of nervous origin, or in spinal therapy? The Ultima Appliance Company, Chicago, advertises a course in spinal therapy, after which a sinuistat made by them is to be used to apply the treatment. I enclose some of their literature. Is this a sound venture?

W. F. B.

Answer.—The Ultima No. 3 sinuistat is manufactured in Chicago by the McIntosh Battery & Optical Company. It is a neat, portable apparatus, operating on the alternating or direct current. It gives a true sinusoidal current slow and rapid, and also other modalities. The sinusoidal current bears a strong similarity to the ordinary faradic, but is less painful because of its greater evenness. According to textbooks on electrodiagnosis and electrotherapeutics, d'Arsonval recommended the sinusoidal currents especially for paralysis, atrophies, atonies, neuralgias, rheumatic affections, and in gynecologic diseases for resorption of the products of inflammation. It is difficult to see how the results to be obtained by the sinusoidal current could be expected to differ in any way from those obtained by the faradic, which is itself extremely limited in its therapeutic action.

AVERAGE LENGTH OF HUMAN LIFE

To the Editor:—I wish to learn what is given at the present time as the average length of life of man. Can you give me this either published in The Journal or by letter? If published, omit name.

C. M. W.

Answer.—As a result of a study of the vital statistics of Massachusetts for the period from 1893 to 1897, it was found that the average duration of life was: for males, 44.1, and for females, 46.6. On account of the absence of complete vital statistics records in the United States covering a considerable period, figures for the average duration of life based on the entire population of the country cannot be provided. Figures from European countries, in which records of vital statistics are more complete, show the following as the average duration of life for the periods named: Sweden, 1891-1900, males, 50.9, females, 53.6; Denmark, 1895-1900, males, 50.2, females, 53.2; France, 1898-1903, males, 45.7, females, 49.1; England and Wales, 1891-1900, males, 44.1, females, 47.7; Italy, 1899-1902, males, 42.8, females, 43.1; Prussia, 1891-1900, males, 41.0, females, 44.5. Figures for India, 1901, give the average duration of life for males as 23.0 and for females, 24.0.

MERCURIAL OINTMENT AND IODIN

To the Editor:—A patient appeared at my office, October 5, suffering from a contusion of the great toe on his right foot, which subsequently resulted in loss of the nail. It seems that the wound had been treated with a mercurial ointment from September 28 to October 4 by a physician in a neighboring town. On removing the dressing, I found that the wound had healed, except an area about one-half the size of an ordinary pea, which I painted very lightly with tincture of iodin. I should like to know if any untoward action could have developed as the result of such treatment.

J. A. Palmer, Jr., M.D., Cumberland, Md.

Answer.—Applying tincture of iodin soon after the use of mercurial ointment on the same locality would be likely to cause a chemical reaction, dependent on the relative amount of mercury and iodin. If there was more mercury than iodin, mercurous iodid (HgI) would most probably result; if the iodin was in excess, mercuric iodid (HgI_2) would be formed. It would therefore be expected that an action of such salts in the tissues would take place. A case report on "Irritation

from Iodin and Mercury on the Skin" appeared in THE JOURNAL, Dec. 21, 1912, p. 2254. The incompatibility of mercury and iodids was discussed in Queries and Minor Notes, Nov. 2, 1912, p. 1640, and July 24, 1915, p. 354. Affections of the skin may manifest themselves after the external use of mercury. Cushny states that "skin rashes are more frequent from inunction than from any other method of application."

JOURNALS ON PEDIATRICS

To the Editor:—Please publish a list of American and foreign journals devoted to children's diseases. M. B. GORDON, M.D., Brooklyn.

ANSWER.—

American Journal of Diseases of Children, American Medical Association, 535 N. Dearborn Street, Chicago, monthly, $3.
Archives of Pediatrics, E. B. Treat & Co., 241 West Twenty-Third Street, New York, $3.
British Journal of Children's Diseases, Adlard & Son, Bartholomew Close, London, E. C., monthly, £1.
Annales de médecine et chirurgie infantiles, 71 Avenue d'Antin, Paris, semimonthly, 12 francs.
Archives de médecine des enfants, Masson & Cie, Paris, monthly, 18 francs.
Pediatría Española, Aurelio M. Argnellada, Atocha 75 y 77, Madrid, monthly, 9 pesetas.
Pediatria, Nikolaevsky 31, Petrograd, Russia, monthly, 6 rubles.
La Pediatria, S. Andrea, delle Dame 21, Naples, monthly, 12.50 lire.
Archiv für Kinderheilkunde, F. Enke, Stuttgart, irregular, 15 marks per volume.
Jahrbuch für Kinderheilkunde, S. Karger, Karlstrasse 15, Berlin, monthly, 36 marks.
Monatsschrift für Kinderheilkunde, Franz Deuticke, Leipzig, monthly, 20 marks.
Zeitschrift für Kinderheilkunde, Julius Springer, Berlin, irregular, 18 marks.

SPECIAL DIET IN PREGNANCY

To the Editor:—There is a diet used during pregnancy to keep the size of the child reduced so that labor will not be so difficult. Not remembering the man's name who proposed the diet, I cannot find it in the index. Can you help me out by referring to the page where I can find it in THE JOURNAL, provided you have taken it up?

G. B. WARD, M.D., Gilman, Iowa.

ANSWER.—Prochownik, whose observations were confirmed by Noel Paton and Reed, recommended that in cases in which the pelvis is slightly contracted, or in which the mother has previously been delivered of abnormally large children, a special diet should be followed. He recommends that in the last few months of pregnancy the carbohydrates and fluids should be reduced to a minimum and that the expectant mother should leave the table without satisfying her appetite completely. It is stated that this procedure has rendered labor in some cases distinctly easier. The general question is discussed and references are cited in "Some Factors Affecting Fetal Development," Current Comment, THE JOURNAL, Sept. 5, 1914, p. 873.

PSEUDOLEUKEMIC ANEMIA

To the Editor:—I would appreciate the publication in your column of any information as to the literature on the pseudoleukemic anemia of von Jaksch, especially as to the frequency of the condition, the number of cases reported and the etiology. Is the condition a clinical entity?

ROBERT KILDUFFE, M.D., Chester, Pa.

ANSWER.—This condition is rather uncommon. There is not available a record of the number of cases reported. The exact cause of the disease is still unknown, and its essential nature is a matter of some doubt. In fact, the existence of pseudoleukemic anemia as a distinct disease is denied by most authorities on diseases of the blood, who regard it simply as a symptomatic complex.

BRAINS AS A DEPILATORY

To the Editor:—In regard to the question asked by Hunter in THE JOURNAL, Oct. 14, 1916, p. 1175, I should like to add my testimony that I know what he states to be a fact. I gather from what you say that you doubt that brains are a depilatory. If you doubt it, just try it once, and I am sure you will be convinced. When I was a boy back in old Virginia, I would go out in the morning, kill a few squirrels, come home, and in three or four hours I would have as nice white leather out of those hides as one would wish to see, and I had no thermometer either. My brother-in-law gave me these directions: Smear the brains of the animal on the raw side, rubbing in well. Then hold the hide before the fire with the raw side next the fire. Hold with the hands in order not to get it too hot. In ten or fifteen minutes the hair comes out easily. Then pull and rub until the hide is dry, which if I have not forgotten, will be about an hour. Of course, I asked my brother-in-law to explain it to me, but he declined. I hoped you would do so, as my interest was reawakened in the matter.

J. E. HUBBLE, M.D., Lordsburg, Calif.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

DELAWARE: Dover and Wilmington, Dec. 12-14. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.

FLORIDA: Regular, Palatka, Dec. 5-6. Sec., Dr. E. W. Warren, Palatka.

KENTUCKY: Louisville, Dec. 11-13. Sec., Dr. A. T. McCormack, Bowling Green.

LOUISIANA: New Orleans, Nov. 30-Dec. 2. Sec., Dr. E. L. Leckert, 716 Macheca Bldg., New Orleans.

MARYLAND: Regular, Baltimore, Dec. 12. Sec., Dr. J. McP. Scott, 137 W. Washington St., Hagerstown.

MISSOURI: St. Louis, Dec. 11-13. Sec., Dr. J. A. B. Adcock, Jefferson City.

NEW HAMPSHIRE: Concord, Dec. 18-19. Sec., Dr. W. T. Crosby, Beacon Bldg., Manchester.

OHIO: Columbus, Dec. 5-7. Sec., Dr. Geo. H. Matson, State House, Columbus.

VIRGINIA: Richmond, Dec. 15-18. Sec., Dr. J. N. Barney, Fredericksburg.

Delaware June Report

Dr. Henry W. Briggs, chairman of the Medical Council of Delaware, reports the written examination held at Dover and Wilmington, June 20-22, 1916. The total number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 8, of whom 7 passed and 1 failed. Three candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
University of Louisville		(1915)	88.4
New York Homeo. Med. Coll. and Flower Hosp.		(1915)	86.7
Hahnemann Med. Coll. and Hosp., Phila.		(1914)	87
Medico-Chirurgical College of Phila.		(1915) 82.4; (1916)	84.3
University of Pennsylvania		(1915) 83; (1916)	86

College	FAILED	Year Grad.	Per Cent.
New York Homeo. Med. Coll. and Flower Hosp.		(1915)	71.8

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
College of Phys. and Surgs., Baltimore		(1905)	Maryland
University of Maryland		(1914)	Maryland
Jefferson Medical College		(1906)	Penna.

Michigan June Report

Dr. B. D. Harison, secretary of the Michigan State Board of Registration in Medicine, reports the written examination held at Detroit, June 1-3, 1916. The total number of subjects examined in was 14; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 56, of whom 54 passed and 2 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Georgetown University		(1915)	83.6
Rush Medical College		(1915) 81.9; (1916)	88.5
University of Illinois		(1915)	82
Johns Hopkins University		(1916)	86.8
Detroit College of Med. and Surg.		(1916) 77.3, 75.4, 79.2, 79.3, 79.7, 80.2, 80.6, 80.8, 81.1, 81.3, 81.5, 81.8, 81.8, 82.1, 82.1, 82.4, 82.7, 83, 83, 83.1, 83.3, 83.3, 83.3, 83.7, 83.8, 83.9, 84.8, 85, 85.3, 85.4, 85.8, 85.9, 86, 86.2, 86.3, 86.6, 86.6, 86.7, 86.7, 87.1, 87.1, 87.5, 88.5.	79.5,
University of Michigan Med. School		(1916)	87.9
Medical College of Virginia		(1915)	78.3
University of Toronto		(1914)	85.5
Western University, London, Ont.		(1914)	82.3

College	FAILED	Year Grad.	Per Cent.
Detroit College of Med. and Surg.		(1916)	75.6*, 81.7*

LICENSED THROUGH RECIPROCITY

Twenty-three candidates were licensed through reciprocity from March 11 to Aug. 12, 1916. The following colleges were represented:

College	Year Grad.	Reciprocity with
Howard University	(1906)	Maryland
Bennett Medical College	(1913)	Illinois
Chicago College of Med. and Surg.	(1913) (1914)	Illinois
Chicago Homeopathic Medical College	(1892)	Indiana
Coll. of Phys. and Surgs., Chicago	(1908)	Illinois
Hahnemann Med. Coll. and Hosp., Chicago	(1915)	Illinois
Medical College of Indiana	(1881)	Tennessee
Baltimore Medical College	(1911)	Delaware
Maryland Medical College	(1911)	W. Virginia
Johns Hopkins University	(1908)	Maryland
Missouri Medical College	(1898)	Oklahoma
John A. Creighton Medical College	(1916)	Nebraska
New York Homeo. Med. Coll. and Flower Hosp.	(1908)	Nevada
Ohio State Univ., Coll. of Med.	(1915)	Ohio

University of Cincinnati	(1912)	Ohio
Jefferson Medical College	(1896)	Iowa
Medico-Chirurgical College of Phila.	(1913)	Penna.
University of Pennsylvania	(1895)	Tennessee
Woman's Medical College of Pa.	(1908)	Maryland
Marquette University	(1915)	Wisconsin
University of Vermont	(1911)	Vermont
National University of Athens	(1897)	Wisconsin

New Jersey June Report

Dr. Alexander MacAlister, secretary of the New Jersey State Board of Medical Examiners, reports the written examination held at Trenton, June 20-21, 1916. The total number of subjects examined in was 9; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 69; of whom 63 passed, including 3 osteopaths, and 6 failed. Fifty-seven candidates were licensed through indorsement. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Georgetown University		(1915)	79.1
Howard University	(1914) 75.4; (1915) 76.8, 82.3;	(1916)	78.3
College of Phys. and Surgs., Baltimore		(1914)	79.7
Johns Hopkins University	(1911) 85.8; (1912) 81;	(1916)	83, 85.1
University of Maryland		(1915)	81.5
Albany Medical College		(1914)	76.4, 79.7, 84.6
Columbia Univ., Coll. of Phys. and Surgs.	(1915) 83.5;	(1916)	80.7, 83.6, 86.6.
Fordham University		(1915)	83.5, 85.2
Long Island College Hospital		(1912)	83.3
New York Homeo. Med. Coll. and Flower Hosp.	(1914) 82.5;	(1916)	75, 77.4, 80.8, 84.3, 87.6.
Univ. and Bellevue Hosp. Medical College	(1915) 82.8;	(1916)	80, 80.1, 80.6.
Hahnemann Med. Coll. and Hosp. of Phila.		(1916)	76.8, 77.8
Jefferson Medical College	(1914) 77.3; (1915) 80, 82.5, 84.2;	(1916)	77, 77.5, 80, 81.6, 83, 88.7.
Medico-Chirurgical Coll. of Phila.	(1914) 82.2; (1915) 83.6, 85.2;	(1916)	75.6, 77.3, 77.5, 80.6, 81.2, 82.3.
University of Pennsylvania		(1916)	81.6, 83.2
University of Pittsburgh		(1913)	80.2
Woman's Medical College of Pa.		(1916)	75.1, 82.3
University of Vermont		(1915)	76.6
Medical College of Virginia		(1914)	83.4
University of Zurich		(1884)	80.2
FAILED			
Howard University		(1907)	71.2
Kentucky School of Medicine		(1906)	67.6
New York Homeo. Med. Coll. and Flower Hosp.		(1915)	72.8
University of Naples	(1894) 71.5;	(1895)	64.4
University of St. Joseph, Beirut		(1894)	70

College	LICENSED THROUGH INDORSEMENT FROM JAN. 1 TO JULY 8, 1916	Year Grad.	Total No. Licensed Through Indorsement
University of California		(1896)	New York
Georgetown University		(1911)	Dist. Colum.
George Washington University		(1912)	N. Carolina
Howard University	(1913) New Hampshire;	(1914)	Dist. Colum.
Baltimore University		(1901)	New York
Johns Hopkins University	(1903) Maryland; (1911)	(1915)	New York
University of Maryland		(1914)	New York
Tufts College Medical School		(1909)	New Hamp.
University of Michigan Medical School		(1896)	New York
Marion Sims College of Medicine		(1896)	Maine
Dartmouth Medical School		(1914)	New Hamp.
Columbia Univ Coll. of Phys. and Surgs.	(1898) (1901) (1912) (1913) New York.		
Cornell University	(1905) (1913)		New York
Fordham University	(1913) Maine; (1913)		Penna.
Long Island Coll. Hosp.	(1900) (1903) (1908) (1914)	(1915)	New York
New York Homeo. Med. Coll. and Flower Hosp.		(1914, 2)	New York
New York Med. Coll. and Hosp. for Women		(1915)	New York
Syracuse University		(1903)	New York
University of Buffalo		(1913)	New York
University and Bellevue Hosp. Med. Coll.	(1904) (1912, 2) (1914) (1915, 2) New York.		
Medical College of Ohio		(1895)	Penna.
Hahnemann Medical Coll. and Hosp., Philadelphia		(1916)	Maine
Jefferson Medical College	(1913) Pennsylvania; (1914) New York; (1915) Dist. Colum.		
Medico-Chirurgical Coll. of Phila.	(1901) (1902) Pennsylvania; (1906) New York; (1914) Pennsylvania.		
University of Pennsylvania	(1893) Massachusetts; (1900) (1901) (1902) Pennsylvania; (1908) Texas.		
Vanderbilt University		(1914)	Tennessee
University of Vermont		(1905)	Mass.
University Coll. of Med., Richmond		(1907) (1913)	Virginia
University of Naples		(1892)	New York

Ohio June Report

Dr. George H. Matson, secretary of the Ohio State Medical Board, reports the practical and written examination held at Columbus, June 6-9, 1916. The total number of subjects examined in was 11; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 162, of whom 159 passed and 3 failed. Fourteen candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Yale University		(1912)	82.4
Rush Medical College		(1873)	75
Eclectic Medical College, Cincinnati	(1901) 75;	(1916)	76.3, 80.7, 80.8, 81.1, 81.5, 82.4, 82.7, 82.9, 83.3, 83.7, 85.2, 85.5, 87.9, 88.2, 88.4, 88.7
Ohio State University, College of Medicine	(1916) 78.5, 79.2, 79.8, 80.2, 80.4, 80.5, 81.8, 82.2, 82.2, 82.5, 82.6, 82.7, 82.7, 82.8, 82.8, 82,9, 83.1, 83.2, 83.5, 83.5, 83.8, 83.9, 84.4, 84.4, 84.5, 84.6, 85, 85.1, 85.1, 85.3, 85.3, 85.5, 85.7, 85.7, 85.8, 86, 86, 86.1, 86.1, 86.2, 86.3, 86.3, 86.4, 86.4, 86.5, 86.5, 86.5, 86.6, 86.7, 86.8, 87.4, 87.5, 87.5, 87.6, 88.1, 88.3, 88.7, 89, 89.2, 89.6, 89.6		
Ohio State University, Coll. of Homeo-Med.		(1916)	75, 79.1, 79.5, 80.2, 80.3, 82.9, 84.6
University of Cincinnati		(1916)	76.2, 77.5, 78, 79.5, 81.2, 81.2, 82.7, 82.9, 83.1, 83.8, 83.8, 84, 84.6, 84.7, 85.4, 86, 86.4, 86.7, 87.2, 87.5, 87.9
Western Reserve University		(1916)	76.6, 78.1, 78.2, 80.6, 80.9, 81.1, 81.2, 82.4, 82.9, 83.1, 83.1, 83.1, 83.4, 83.5, 83.7, 83.9, 83.9, 84.1, 84.5, 84.6, 84.6, 84.7, 84.9, 85.1, 85.1, 85.3, 85.4, 85.4, 85.5, 85.5, 85.6, 85.8, 85.8, 86.3, 86.5, 86.7, 86.9, 87, 87.1, 87.2, 87.3, 87.8, 89, 90.2, 90.4, 90.9, 91.1		
Jefferson Medical College		(1916)	84.2
University of Pennsylvania		(1913)	83
University of Pittsburgh		(1915)	84.6
Woman's Medical College of Pennsylvania		(1915)	84
FAILED			
Eclectic Medical College, Cincinnati		(1916)	72.7, 73.2
Marquette University		(1912)	72.9

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Chicago Homeopathic Medical College		(1894)	W. Virginia
Bowdoin Medical School		(1897)	Maine
Baltimore Medical College		(1898)	Vermont
College of Physicians and Surgeons, Baltimore		(1907)	Maryland
University of Maryland		(1915)	Maryland
University of Michigan Medical School		(1915)	Michigan
University of Michigan Homeo. Medical School		(1915)	Michigan
Columbia University, College of Phys. and Surgs.		(1914)	New York
Eclectic Med. Coll., Cincinnati	(1904) Pennsylvania;	(1904)	Illinois
Medical College of Ohio		(1899)	New Jersey
Western Reserve University		(1914)	Illinois
Jefferson Medical College		(1913)	Kentucky
Woman's Medical College of Pennsylvania		(1913)	Maryland

Book Notices

OPERATIVE MIDWIFERY. A Guide to the Difficulties and Complications of Midwifery Practice. By J. M. Kerr, M.D., C.M., Professor of Obstetrics and Gynecology, Glasgow University. Third Edition. Cloth. Price, $6 net. Pp. 725, with 308 illustrations. New York: William Wood & Co., 1916.

The title of this work does not indicate its comprehensiveness; it is more than an operative midwifery, for it includes much that belongs to a general treatise on the subject. For example, thirty pages are devoted to the pathology and symptomatology of ectopic gestation.

The author's style is good. A liberal spirit is shown in references to the literature, a large number including the German. The illustrations, though not especially artistic, are instructive. The author's opinions reflect a large experience, and, in the main, are sound. Tinged as they are with British conservatism, they might well be adopted in America, where one must deplore the tendency to wander too far from the time tried, time proved and time honored procedures.

Abdominal examination, considered a new method, is endorsed; but the rectal, though considered valuable, is not given the prominence it deserves. Internal pelvimetry is regarded as of little value—an error. Cephalic version in breech presentation, an operation seldom done here, is practiced by the author frequently. Retroflexion of the gravid uterus is given much space, though it is one of the rarest of obstetric complications nowadays. The advice to give potassium chlorate, 5 grains three times a day, in threatened abortion and to prevent death of the fetus is one of the few anachronisms found in the book.

Craniotomy on the living child, though rarely necessary, is still held justifiable. The induction of labor is limited to pelves of from 8.1 to 8.7 cm., and Krause's method is preferred, the bougies being left in the uterus indefinitely. The author is not fond of the operation, however.

He uses the high longitudinal incision for cesarean section, and believes that the newer methods will soon pass into oblivion. This subject is treated scantily because he has had no experience with the newer operations.

The indications for the forceps operations are the standard ones. In accordance with British (and no other) practice, the low forceps operation is performed with the patient in the Sims position, the axis traction instrument being used. The author reiterates the statement that the traction rods cause no inconvenience, and that the operation is easily performed thus; but neither the illustrations nor the arguments (nor actual trial) are convincing. The method is clumsy and bunglesome. The treatment of occiput posterior positions does not sufficiently emphasize the possibilities of manual correction of such abnormalities. Rupture of the uterus is well handled, and sound advice regarding its management is given. Postpartum hemorrhage is not exhaustively treated. Evidently the author has not yet met a true hemophilic postpartum hemorrhage. He says gauze will "absolutely" control the flow.

In general, the book may be recommended as a safe, sane, and on the whole satisfactory adviser in obstetric complications. Primitive conditions for work are still tolerated (as in Chapter 21), and one cannot escape the conviction that, in Britain, obstetrics is not accorded a place on a level with surgery.

SURGERY IN WAR. By Alfred J. Hull, F.R.C.S., Major, Royal Army Medical Corps, with a Preface by Sir Alfred Keogh, K.C.B., M.D., Director-General Army Medical Service. Cloth. Price, $4. Pp. 390, with 81 illustrations. Philadelphia: P. Blakiston's Son & Co., 1916.

This is a well assembled series of monographs by officers of the Royal Army Medical Corps and others, dealing with the bacteriology of wounds in war; the general condition of the wounded; wounds of the abdomen; treatment of wounds by saline solution; gunshot wounds of the chest, and injuries to the peripheral nerves. These essays are unified by Major Hull so as to give the civilian practitioner a clear idea of the treatment which has proved efficacious in the British service during the present war. Much of this information is new and suggestive. The preface is written by Sir Alfred Keogh, director-general of the Army Medical Service, and the introduction by Lieut.-Col. E. M. Pilcher, R. A. M. C. The book is compact and well illustrated.

THE CASTLE OF CHEER. By Charles Henry Lerrigo. Cloth. Price, $1.25 net. Pp. 304, with illustrations. New York: Fleming H. Revell Company, 1916.

The author of "Doc Williams" takes up again his pleasing character and builds around him an interesting story. The new book is dedicated to Dr. Edward L. Trudeau. The scenes of the story are laid in the Middle West, but the chief note of the work is the method of Saranac Lake. As he tells the story, the author recites many health aphorisms and proverbs. Incidentally he pays his respects to the quack doctor, and particularly to a device which he calls the "oxyjuvenator" which will be easily recognized by those who have followed the career of the "oxydonor" and similar devices.

THE INSTITUTIONAL CARE OF THE INSANE IN THE UNITED STATES AND CANADA. By Henry M. Hurd, William F. Drewry, Richard Dewey, Charles W. Pilgrim, G. Alder Blumer and T. J. W. Burgess. Edited by Henry M. Hurd, M.D., LL.D., Emeritus Professor of Psychiatry, the Johns Hopkins University. Volume 2. Cloth. Price, $2.50. Pp. 895, with illustrations. Baltimore: The Johns Hopkins Press, 1916.

The second volume of this excellent series is devoted to a discussion of institutions for the insane in states from A to M. The histories of the various institutions are written in simple, direct style. Lists of trustees and superintendents are given, as well as the names of the various members of the staff during the life of each institution. There are numerous illustrations.

CARE AND FEEDING OF INFANTS AND CHILDREN. A Text-Book for Trained Nurses. By Walter Reeve Ramsey, M.D., Associate Professor of Diseases of Children, University of Minnesota, with Suggestions on Nursing by Margaret B. Lettice, Supervising Nurse of the Baby Welfare Association, and Nann Gossman, Nurse in Charge of Children's Department, University Hospital, Minneapolis. Cloth. Price, $2. Pp. 290, with 112 illustrations. Philadelphia: J. B. Lippincott Company, 1916.

This book has been prepared chiefly as a textbook for nurses. The advice is simply stated, and in general is in accord with modern ideas. The illustrations are excellent. Just what value there is to the illustrations of cows and stables, of which there are about half a dozen, is not clear.

Social Medicine, Medical Economics and Miscellany

THE PRIVATE HOSPITAL: SOME DISADVANTAGES TO THE PHYSICIAN

HENRY GLOVER LANGWORTHY, M.D.
DUBUQUE, IOWA

As the idea of a private hospital is probably the average physician's dream or "air castle" from the time of near graduation until many early ambitions have been shown to be more or less impracticable, it is the purpose of this paper to set forth some of the arguments, mostly against, physicians fostering such propositions. The deductions at least are gathered from actual experience encountered in carrying out the small hospital idea for a sufficient length of time to have become acquainted with it. From the standpoint of general interest, therefore, it would seem that the results of a determined effort to carry out a venture of this kind under a good deal of stress and strain would seem worth recording. When any man, either business or professional, seeks to go a bit outside the strict boundaries of his training, a good many unlooked for troubles of one kind or another are sure to be encountered, and on the proper solution of some of these rests the ultimate success or failure of the venture. Since it may be said with a good deal of truth that few physicians contemplating the thought of a private hospital will be liable to face conditions that have not been met before, a frank discussion as to why they are started, how they have actually worked out in the great majority of instances, and whether or not the proposition was found in the end really worth the time, labor and money given up to it will be of more than passing interest.

WHY PRIVATE HOSPITALS ARE STARTED

It is a little difficult, of course, to analyze the exact train of thought in every case which leads a physician to branch out into the running of a private hospital. In many instances, no doubt the doctor himself is perhaps a bit hazy as to his underlying motives. Undoubtedly, however, the thought of a well ordered private hospital, from which a more generous income may be derived than seems possible with the average private practice and which furnishes greater opportunity for direct advertisement to the people, are the main reasons. In addition there is, of course, the thought of conspicuous personal achievement as another goal for which he may be seeking. Back of all this, too, and quite clearly exemplified I think in communities which have no hospitals, there lies the unconscious thought of service to humanity, a far stronger motive than most of us would think. Indeed, it would seem only a just tribute to state that the idea of "blazing a trail" for future civilization lies very strong in most of us, and in the main we make no mistake in giving these men who start things the full measure of credit for the city-building plan in which they strive to create rather than to tear down. That this is true, full many a public institution reared on the slender frame of some private enterprise long years past will testify.

NECESSARY VITAL PURPOSE WARRANTING STARTING OF A PRIVATE HOSPITAL

The necessary, and I may say the fundamental purpose in instituting a private hospital by a physician should be that of better service to the people. This means the giving of certain advantages in either special or general lines of cases which the particular community either cannot or else does not give in a satisfactory manner. When there are no hospitals in a small community, it is obvious that the physician is a public benefactor if he starts a hospital of some description. In larger towns in which there is already a public hospital in existence, the question becomes much more complex. It is in the smaller city in which a public hospital has already been started, but which needs time for development, may be sadly in need of money and reorganization and where there is an opportunity for real criticism, perhaps, that the physician who thinks of starting a private hospital should stop and seriously consider whether it is not far better for

him to throw all his good will and hearty support to the hospital already existing and strive to perfect the institution which is public property and will be perpetuated long after he may be dead and forgotten, rather than to enter into competition against it. Whatever may be a physician's action in this respect however, I repeat that the idea of service alone should be the building rock and not merely some commercial advantage. Certain it is that unless this is the groundwork, the private hospital is very apt to contain within itself some latent germ for its own destruction.

SOME DISADVANTAGES TO THE PHYSICIAN

Some of the disadvantages, while not so apparent on the surface to outsiders, are very real and formidable. The most important ones may be roughly grouped as follows:

1. Cost of equipment (figuring on the average twelve bed hospital), requiring time and credit to pay for it, with monetary loss if the hospital fails to run a reasonable length of time.

2. Reason for some kind of advertisement, which always offends local competing physicians and gives rise to bad will, etc. Local competition in smaller places is so keen, there being scarcely enough business to go around, that the seeming advantages of the men pushing their private hospital, and its success in gaining business, results often in the most lasting and unforgiving jealousy and bitterness.

3. The responsibility of bearing a heavy monthly expense roll by one or two, which is always felt and keeps the proprietors under high tension. One or two men seldom have the practice to keep successfully a twelve or sixteen bed hospital full all the year round which, coupled with the fact that not all patients pay their hospital bills, increases the wear and tear and general strain.

4. Inability to get a permanent, competent matron to run the hospital, which means for the physician frequent looking after girls who ought to be under a strict matron's control, delving into kitchen finances, looking into the expenses of the drug department, and indeed quite a multitude of both trivial and important matters, all taking that time and thought which should be given solely to the physician's practice.

5. Difficulty in keeping an associate or associates in proper line with one object in view, namely, success. Only too often physicians break down under the strain in one way or another.

6. Detraction from the value of local public hospitals, which so often need to be built up through the cooperation of the very men who enter their particular field as competitors against them.

ADVANTAGES

In the main, the advantages fall naturally into two headings, so far as real importance is concerned:

1. Legitimate opportunity for direct advertisement and appeal to the public for patronage.

2. The advantage of absolutely controlling one's patients within the private hospital.

Other apparent advantages, such as the making of one fee covering professional services, operation, medicines and hospital charges, hospital proximity to the doctor's residence, and team work by a few physicians constantly thrown together and helping each other, are more apparent than real, and so easily overcome by proper use of the public hospital that it might well be considered something of fallacy to class these as possessing any distinct and special advantage.

CONCLUSIONS

1. In small communities in which there are no hospitals, a private hospital is desirable and should be successful. Even here, however, attention should be called to the fact that with ever-changing conditions and increasing requirements, sufficient amounts of money properly to equip and maintain a private hospital are usually lacking by the single individual, and unless a few men can get together and cooperate, any physician alone takes up quite a burden if he attempts to compete along lines for which he is naturally not well trained, and to which it is impossible to give his entire attention.

2. In a town in which a public hospital has already been started, there is little excuse for the creation of a private hospital, as the average physician will make fully as much of a saving, and benefit the public as much and with less personal worry, if he cooperates with the public institution and uses it as a receptacle for his patients.

Medicolegal

Sufficient Information, Admissible Evidence, and Reasonable Requirements

(*People vs. Ratledge* (*Calif.*), *156 Pac. R. 455*)

The Supreme Court of California, in affirming a judgment of conviction of the defendant, says that the information was attacked on the ground that it charged "the crime of practicing medicine without a certificate from the medical board," the contention being that no such crime is denounced by the law. It is true that the statute does not contain the quoted words, but clearly they were used merely for purposes of general description of the offense as they were followed by the averment that the crime was "committed as follows: That the said T. F. Ratledge on the 30th day of October, 1914, at, and in the county of Los Angeles, state of California, did wilfully and unlawfully practice, attempt to practice and advertise and hold himself out as practicing a system and mode of treating the sick and afflicted in the state of California, without then and there having a valid, unrevoked certificate authorizing him to practice a system or mode of treating the sick and afflicted in this state from the board of medical examiners of the state of California." This sufficiently charged a violation of Section 17 of the medical practice act (Statutes of 1913, page 734), and was not open to the criticism that it sought to impute many offenses to the defendant because any one of the acts or omissions averred and conjunctively pleaded would suffice as the basis of an information.

The defendant complained of the trial court's refusal to strike out parts of certain answers of witnesses who stated that they had received "treatments" from him. It was regarded by him as an unwarranted conclusion of a witness that certain acts constituted a "treatment." The objection was without force. Doubtless the witnesses used the word in its well understood signification; that is, the application of some supposed curative agency to the person seeking relief. Again, a witness was permitted over the defendant's objection to detail the occurrences on the occasion of a visit by her to his office nearly six months before the time set forth in the information. The objection was on the usual grounds of incompetency, etc., and that the time was too remote. But the evidence was competent as tending to show the intent and motive of the defendant in the commission of the acts charged in the information, and it was not too remote. Courts are allowed a wide discretion with respect to the periods of time covered by such testimony.

The defendant offered to prove that the state board of medical examiners held no examination for chiropractors; but the proffered proof was properly rejected. The only question with which the court was concerned was whether or not the defendant was practicing without a license. The fairness or unfairness of the board of medical examiners was not a question before the court. If the defendant was unlawfully excluded from examination, that was something which he might have remedied by application to a court of equity, but it would be no defense to a charge of practicing without a license.

The argument was made that because the law includes such subjects as histology, elementary chemistry, toxicology, physiology, elementary bacteriology, and pathology in the examinations to be taken by applicants for certificates to practice as drugless healers, it is unfair, because these are standard courses of study in the preparation of physicians and surgeons, but are not needed in the art of those who

intend to alleviate human suffering by manual and mechanical means only. The answer is that to the legislature is committed the duty of determining the amount and quality of scientific education necessary for the individual to possess before he may hold himself out to practice the healing art. Unless the legislative conclusion on that subject is obviously unfair this court may not interfere, for the scope of the police power is very extensive, and the discretion of the legislature in exercising such power is very broad. The court concludes that there is nothing unreasonable in the curriculum prescribed by the medical practice act for those wishing to secure licenses to practice the art of drugless healing.

Physician Selected by Employee Not Entitled to Compensation from Employer

(Keigher vs. General Electric Co. (N. Y.), 158 N. Y. Supp. 939)

The Supreme Court of New York, Appellant Division, Third Department, had here a controversy submitted on an agreed statement of facts. It says that one Pisarzky was an employee of the defendant, and while in its service, Jan. 19, 1915, sustained an injury for which he was entitled to compensation under the workmen's compensation law. The defendant provided a concededly competent physician and surgeon to care for him until January 23, when he absolutely refused to accept such services, and requested the defendant to provide for him the services of the plaintiff, a physician and surgeon, which the defendant declined to do. The plaintiff thereafter rendered medical services to Pisarzky, and presented a bill therefor to the defendant, amounting to $54, which the defendant refused to pay. The state industrial commission thereafter, without notice to the defendant, approved said bill at $40, and the question for the consideration of the court was whether the defendant was liable therefor to the plaintiff. The court holds that it was not. Section 13 of the New York workmen's compensation law says: "The employer shall promptly provide for an injured employee such medical, surgical or other attendance or treatment, nurse and hospital service, medicines, crutches and apparatus as may be required or be requested by the employee, during sixty days after the injury. If the employer shall fail to provide the same, the injured employee may do so at the expense of the employer. The employee shall not be entitled to recover any amount expended by him for such treatment or services unless he shall have requested the employer to furnish the same and the employer shall have refused or neglected to do so. . . ." The proper construction of this statute is that, if services or supplies of the character indicated are needed, or reasonably and properly requested by the employee, the employer must provide the same, using his own judgment and exercising his own choice as to the person who shall render such services and as to the nature of the supplies, and "if the employer fail to provide the same the injured employee may do so at the expense of the employer." And in such case the charges are subject to regulation by the commission and may be recovered by the employer. The employer, of course, cannot make an unreasonable selection. There may be instances in which the employee would have the right to be consulted and a reasonable and proper deference paid to his wishes. Similar provisions are contained in the workmen's compensation laws of many of the states, but in none of them has any decision been brought to the attention of this court where it has been held that the employee could select the individual to render the services which the employer was requested to provide. The phraseology of the statutes in the various states differs, and consequently no precedent exists for the interpretation which should be placed on the statutes of this state, but the fact that it has nowhere been held that the employee can exercise this privilege is somewhat indicative of the general policy of the law on the subject. Two members of the court concur in the result on the ground that the employee by continuing to receive the treatment of the company's physician for three or four days assented to his employment and could not then repudiate it.

Society Proceedings

COMING MEETINGS

American Academy of Ophthal. and Oto-Laryn., Memphis, Dec. 11-13.
American Association of Anatomists, New York, Dec. 27-29.
Medical Association of the Isthmian Canal Zone, Ancon, Dec. 16.
Society of American Bacteriologists, New Haven, Conn., Dec. 26.
South. Surg. and Gynec. Assn., White Sulphur Spgs., W. Va., Dec. 11-13.
Western Surgical Association, St. Paul, Dec. 15-16.

MEDICAL ASSOCIATION OF THE SOUTHWEST

Eleventh Annual Meeting, held at Fort Smith, Ark., Oct. 3-4, 1916

The President, DR. JOE BECTON, Greenville, Texas, in the Chair

Blood Pressure

DR. R. L. K. KIMMINS, Temple, Texas: You will frequently find a systolic pressure of more than 200, and a diastolic of more than 125, in people who do not know they are sick, and, indeed, they may not be sick; yet these points are far beyond the line of safety, and you would not think of passing an applicant for life insurance with such a pressure, yet this very person may be a better risk than one with a much lower pressure. So long as the ratio between the two is good, so long as the heart load is not above 65 or below 35, the tension may be very high, without immediate danger. When the tension is much above normal, have the patient take a little violent exercise, and if the pressure rises rapidly 30 to 40 points, and regains its former level in three or four minutes, that person is in better condition than one with a normal pressure, who does not respond promptly to exercise and rest. Close application to business, and careless manner of living, lead up to the condition.

DISCUSSION

DR. WILLIAM BRUMBY, Waco, Texas: In aortic and myocardial regurgitation the systolic pressure is 120 or 130, with a diastolic of 50, giving 160 per cent., instead of 50, 120 or 200 per cent. heart load. In some instances on auscultation we can elicit sounds over all arteries without any cuff on the arm. In cases of nephritis in which there is good compensation, in cases of incipient Bright's disease, with very high pressure, insurance companies take the position that a systolic pressure of 145 or over is pathologic. Patients with a diastolic pressure of 105 are considered pathologic, giving 45 per cent. overload.

DR. RALPH W. HOLBROOK, Kansas City, Mo.: In cases of toxemia, after several days the blood pressure is 118 or 150. At the end of a long hot summer, with the first two days of cold weather, we find a blood pressure of 118, sometimes 114, or even 96 in the female—94 to 96 systolic.

DR. C. R. WOODSON, St. Joseph, Mo.: I do not think it is necessary to attach as much importance to a high blood pressure as some people are disposed to think. The reason there is high blood pressure is that there is a necessity for it. The thing to do is to remove the cause. Vessel degeneration occurs at a much earlier period of life than has been stated. We may have a marked vessel degeneration as early as 45. We have it in certain families. We have it apparently as a result of kidney lesions; very often as a result of syphilis, especially in the beginning of an endarteritis and thickening of the intima of the vessel and a marked degeneration following. I have seen marked tachycardia with a reasonably high blood pressure in typical cases of exophthalmic goiter at 20, 25 or 40, and at a much younger period than has been stated.

A New Sterilization Operation on the Female Tubes

DR. A. L. BLESH, Oklahoma City: The operation is founded on the principle of the interposition of two serous surfaces between the severed continuity of the tube at the uterine cornu. Technic of the operation: A lower median abdominal incision is made. The tube is grapsed and under tension cut out deeply from cornua. The cornua are closed over with uterine serosa, with fine catgut. The serosa of the tube is

stretched and tacked over the incision in the uterus. This interposes two layers of serosa, with a base of muscularis over the canal.

An Undescribed Physical Sign of Portal Obstruction

Dr. E. H. Martin, Hot Springs, Ark.: A narrow band of enlarged capillaries over the costal cartilages of a red or purple mixed with red is seen frequently after acute attacks of malaria, especially when large doses of purgatives have been used. In other cases difficult to classify, the band will be from 1 to 2 inches wide, varying from all red capillaries to all purple capillaries, or often mixed red and purple, and this band seems to be associated in every instance with symptoms of portal obstruction. More than half of the patients having these bands give a history of hemorrhoids. Another large proportion give a history of gastric indigestion, hepatic colic, cholecystitis, etc. On some cases of ascites, due to cirrhosis of the liver, these capillary bands are so marked that they look as though painted on with a brush. In a recent case of ascites, which gave no liver history, but seemed to be entirely due to cardiac insufficiency, there was no fringe of capillaries over the ends of the ribs. This capillary band, which we usually refer to as a "liver fringe," is usually more marked on the left side than the right. It occurs occasionally without any other sign or symptom of anything pathologic of any kind. It occurs many times more frequently in men than in women.

Focal Infections

Dr. W. H. Livermore, Chickasha, Okla.: We have on record over 600 cases in which the removal of pus foci has either cured or greatly benefited the patient. Two years ago I operated on a man for gastric ulcer, doing a gastro-enterostomy; the results were very satisfactory for about a year, when the symptoms returned. After extracting three teeth, with apical granulomas, and the removal of his tonsils, all symptoms of gastric ulcer vanished within a month, and he is now enjoying better health and working harder than for years. Again, I operated for gallstones in 1912, and removed the gallbladder in 1913. Symptoms returned within five months after operation, and persisted to January, 1916. Diseased teeth were extracted, and the patient has not had a recurrence of the old symptoms since. It is now a routine practice of mine to remove tonsils and extract teeth, which show apical granulomas, in all cases of gallbladder trouble, appendical trouble, fibrocystic conditions in the pelvis, or duodenal and gastric ulcer at the time of the abdominal operation, unless the patient shows signs of shock before I am through with the work in the abdomen.

Focal Infections

Dr. A. B. Leeds, Chickasha, Okla.: We have found that by beginning at the tonsils and teeth and then checking up the other possible foci, the tonsils or one or more teeth are usually affected with a definite strain of streptococcus or some allied or kindred coccus. In removing these foci in the teeth and tonsils with the other foci, we have not only relieved but also cured many patients whose condition had resisted every other known method of treatment, medical or surgical. Our practice is not to correct a chronic pelvic lesion, cystic ovary, appendix, gallbladder, etc., without removing the diseased tonsils and diseased teeth at the time of the operation, and since following this practice our results have been much more satisfactory.

Heat in Cancer of the Uterus

Dr. A. F. Hoge, Fort Smith, Ark.: I agree with Clark that we should not depend on heat alone; that we should, in all suitable cases, follow the heat treatment with a radical Wertheim removal; also, these patients should have after-treatment in the form of Roentgen therapy or radium.

Malignant Growths of the Face

Dr. D. W. Goldstein, Fort Smith, Ark.: Before deciding on the removal of an epithelioma, we have to consider location, size, infiltration, whether ulcerating or not, and length of time the patient has had the growth. Surgery is good in selected cases. Carbon dioxid snow gives good results in selected cases. For senile keratosis and verruca, carbon dioxid snow does very well. I also often use trichloracetic acid applied on a wooden applicator. I am now using radium in these conditions. It seems to destroy the pathologic cells without destruction of the normal cells. I believe that radium offers more than any previous treatment, and that we shall soon accept it as the method of choice in treating epithelioma. The sooner we consider all growths of the face as potential cancers, and treat them as such, the quicker we shall stamp out epithelioma of the face.

Treatment of Certain Types of Goiter with Quinin and Urea Hydrochlorid Injections

Dr. Leigh F. Watson, Oklahoma City: The treatment is suggested only to relieve the symptoms of hyperthyroidism, and is not recommended to remove the tumor in simple goiter. The method is suitable for use only in a hospital by men experienced in the difficulties of thyroid surgery. The danger of destroying too much of the gland must always be borne in mind. The greatest field of usefulness for the injection will be found in those cases of beginning hyperthyroidism not severe enough to justify operative treatment, and as a preparatory measure to partial thyroidectomy in chronic cases of toxic goiter in which the patient is too ill to warrant any form of immediate operative procedure.

When to Operate in Disease of the Biliary Tract

Dr. John G. Sheldon, Kansas City, Mo.: When the jaundice precedes the sepsis, the common duct is obstructed by a foreign body within its lumen. The sepsis comes after the jaundice is well established. In these cases there is no pathologic condition outside of the duct to interfere with its becoming dilated by the back pressure which rapidly increases as a result of the obstruction and sepsis. When the duct dilates, the obstruction is somewhat relieved and the patient improves. Operation should be delayed in this class of patients. When the sepsis has preceded the jaundice, the common duct is not obstructed by a foreign body within its lumen, but by pressure from inflammatory swelling outside the duct. A large stone impacted in the cystic duct, pericholecystitis and enlarged lymph glands are commonly the cause of the pressure and occlusion of the common duct in these cases. When such a condition exists, the duct cannot dilate to relieve the obstruction. Delay, in these cases, is useless and dangerous; operation should be done as soon as possible.

The Transverse Incision in Appendix Operations

Dr. Hugh L. Charles, Atchison, Kan.: Notwithstanding the fact that the transverse incision should not be made from choice where additional abdominal work is expected, it is nevertheless feasible at times to lengthen the transverse incision in order to do such additional work, should the operator unexpectedly find it necessary. The time occupied in this operation varies. In clean, uncomplicated cases, from three to five minutes will usually suffice; in cases with a Lane kink or other bands, from eight to fifteen minutes will be required; in pus cases, when the retrocecal appendix has to be removed and stab drainage provided for, twenty minutes may be consumed. I usually close the skin with a subcuticular stitch.

Operations for Acute Gonorrheal Epididymitis

Dr. Julius Frischer, Kansas City, Mo.: Operation is the method of choice when excruciating pain is present that cannot be relieved by palliative measures. The relief from pain is fairly prompt, from twenty-four to forty-eight hours, and the patient usually is out of bed in four days. Without drainage, the patient is in bed from seven to fourteen days. Better drainage can be obtained. There is less opportunity for a recurrence, which is not infrequent in nonoperative acute epididymitis. In some cases, despite all palliative treatment, abscess formation takes place, and the epididymis has to be opened and drained.

AMERICAN ROENTGEN-RAY SOCIETY

Seventeenth Annual Meeting, held at Chicago, Sept. 27-30, 1916

(Concluded from page 1471)

Capillary Circulation in Chest Roentgenograms

DR. J. G. VAN ZWALUWENBURG, Ann Arbor, Mich.: The capillary blood volume in the lung is an appreciable factor in the density of that organ, and deserves consideration in the study of chest roentgenograms. Local changes in the capillary circulation can be more easily and more certainly recognized by an asymmetry of density. The local hyperradiability of senile and hypertrophic emphysema are probably due to the disappearance of the capillaries in the walls of the air vesicles rather than to the great amount of air in the locally inflated portion of the lung. So too the localized greater density of the lungs in the presence of mediastinal masses may with greater probability be ascribed to obstruction of the return circulation or involvement of the neurovascular mechanism than to obturation atelectasis, as has been done in the past.

Roentgen Diagnosis of Bronchiectasis

DR. A. B. MOORE, Rochester, Minn.: In twenty-five cases studied by combined clinical and roentgenographic methods, average age was 26½ years. The average time since the symptoms were first noted was eight years. In all but seven the onset of the disease was described as a cough following an acute infection, commonly measles, whooping cough and influenza. Two patients had inhaled foreign bodies; one a splinter of wood which he subsequently coughed up; the other a fragment of tooth which was found plugging one of the terminal bronchi at necropsy. Five patients gave roentgenologic evidences of a tuberculous infection, and three had had tubercle bacilli in their sputum. A definite Roentgen diagnosis of bronchiectasis was made in nineteen, and a diagnosis of probable bronchiectasis in two. In four the Roentgen diagnosis was incorrect.

Roentgen Examination as an Aid in Differential Diagnosis of Pneumonia and Empyema, Especially in Children

DR. WILLIAM H. STEWART, New York: Increased vocal resonance in pleural effusion and the absence of bronchial breathing and increase in voice sounds in pneumonia render the differential diagnosis of these lesions most difficult. Not only is the roentgenologist able to give positive information as to the presence or absence of fluid, but he is able, in the vast majority of cases, to give an approximate opinion as to the quantity, to locate the accumulation, and to direct the proper entrance of the aspirating needle, should it be desired to verify the findings. This is especially valuable in sacculated empyemas.

DISCUSSION ON ROENTGENOGRAPHY IN DISEASES OF THE CHEST

DR. W. F. MANGES, Philadelphia: In children, tuberculosis is more prevalent at the base of the lung than at the periphery. Dissemination takes place by continuity and contiguity, through the blood stream as well as through the lymph stream.

DR. GEORGE C. JOHNSTON, Pittsburgh: When a child has aspirated a foreign body not large enough to block a bronchus completely, and when it has been in the lung for a few months, you need not be surprised if you find a lung completely filled with pus with no evidence of lung structure and every appearance of an empyema. After passing the bronchoscope and pumping out several ounces of pus, you will find that it is not an empyema.

DR. L. T. LEWALD, New York: An error may be made in diagnosing an appendicitis as an acute lobular pneumonia in children.

Blood in Cancer Under Roentgen Therapy

DR. R. H. STEVENS, Detroit: The Roentgen ray in repeated large doses, with deep penetration, contrary to most of the reported experiments on small animals, affects the erythrocytes of human beings profoundly. The lymphocytes for the first day or two are suppressed or destroyed by large doses of Roentgen ray in the treatment of cancer. Following this, in favorable cases, there is a reaction with lymphocytosis between the third and the seventh day, which may continue almost uninterruptedly till the fourteenth day, or it may stop shortly after the seventh day, and reappear more strongly and persistently on or about the fourteenth day. We note the striking similarity between this and the action of the ray on the blood of the lower animals. The second reaction may continue as long as forty days. There is a strong resemblance between these lymphocytic reactions and those which constitute the opsonic index. The treatment probably should not be repeated until the reaction is over. The repetition of dose should probably be governed by the reactions in the blood as well as by the reactions in the skin, the former being much more sensitive than the latter. The Roentgen ray in some cases of cancer tends to stimulate a general (though probably temporary) immunity, if lymphocytosis is an indication of immunity. The action of the Roentgen ray in cancer, therefore, would appear to be twofold: (1) local, by its destruction of disease cells, and (2) general, by stimulating lymphocytosis and consequently resistance.

Prognosis in Roentgen Treatment of Malignant Tumors

DR. A. F. HOLDING, New York: From a study of the results observed in over 1,000 cases treated with surgery, Roentgen rays, radium, mixed toxins, colloidal copper, autogenous vaccines, coagulation, effulgation, etc., I would suggest that the treatment indicated in tumors and allied conditions varies according to the classification of the maladies. Lesions which do well under Roentgen ray or radium treatment, as basal cell epithelioma, adenocarcinomas of the ovary, carcinomas of the testis of teratoid origin, carcinomata mammae, embryonal carcinomas, lymphosarcomas, giant cell sarcomas, infectious granulomas, thymomas, tuberculous adenitis, myxomas (malignant), endotheliomas, mixed tumors of the parotid, pseudoleukemia and leukemia, should have Roentgen rays and radium treatment, with or without surgery and effulgation. Lesions in which Roentgen rays and radium at best give only palliation or no result at all, as carcinomas of the abdominal viscera, squamous cell epitheliomas, carcinomata uteri, spindle cell sarcomas, alveolar sarcomas, osteosarcomas, melanomas and hypernephromas, should have radical surgical removal by bloodless methods where possible, with postoperative radioactive treatment.

Carcinoma of the Uterus Treated by Radium and Roentgen Rays

DR. RUSSELL H. BOGGS, Pittsburgh: As a forerunner and a follower up of operation, radium is of unquestionable value. Relief of the symptoms in advanced cases is so marked that every practicing physician should at least familiarize himself with this fact. The offensive discharge and the hemorrhage usually completely disappear. The discharge at the beginning, which is so offensive to the family and nurses, as well as to the patient, usually completely disappears within two or three weeks.

Treatment of Hopeless Malignancy

DR. GEORGE C. JOHNSTON, Pittsburgh: The surgery of malignancy is rather the surgery of removal than the surgery of cure. For this reason the earliest possible diagnosis, followed by wide extirpation of the area under suspicion, is imperative.

DISCUSSION ON ROENTGENOGRAPHY IN MALIGNANT DISEASE

DR. GEORGE E. PFAHLER, Philadelphia: I am sure that there is resistance on the part of many patients to malignant disease, and Roentgen therapy may increase that resistance.

DR. A. L. GRAY, Richmond, Va.: It is important in cases of malignant disease, referred to us for postoperative treatment, to know just how long the Roentgen treatment should be continued. It is my custom to administer just as soon as possible after operation a series of cross fire treatments with the Coolidge tube. The patient returns in three or four weeks for another series, and for a third series in another three or four weeks. Of course, this is in cases in which there is no recurrence or evidence of metastases.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Roentgenology, New York

October, III, No. 10

1 Some Aspects of Special Interest Bearing on Roentgen Diagnosis of Tuberculosis of Lungs. H. Hulst, Grand Rapids, Mich. —p. 465.
2 Appreciation of Roentgen Ray and Warning as to Its Use in Surgical Diagnosis. C. H. Mayo, Rochester, Minn.—p. 474.
3 Routine Technic of Barium Diagnosis. L. L. Jones, Battle Creek, Mich.—p. 477.
4 Use of Thorium in Urology and Roentgenology. J. E. Burns, Baltimore.—p. 482.
5 Sensitizing Effect of Cold on Roentgenized Surfaces. C. A. Simpson, Washington, D. C.—p. 485.

Boston Medical and Surgical Journal

November 2, CLXXV, No. 18

6 *Relation of Deep Culdesac to Prolapse of Rectum and Uterus and to Rectocele. D. F. Jones, Boston.—p. 623.
7 Effect of Alcohol in Rate of Discharge from Stomach. L. T. Wright, Atlanta, Ga.—p. 627.
8 Blood Transfusion in War. W. R. Morrison, Boston.—p. 629.
9 *Undescended Testicle in Children. C. G. Mixter, Boston.—p. 631.
10 Mechanism of Protection Afforded by Drainage of Prostatics as Preliminary to Operation. H. Cabot and E. G. Crabtree, Boston.—p. 633.
11 Pregnancy Complicated with Hernia; Report of Three Cases. J. P. Gardiner, Toledo.—p. 637.

6. **Relation of Deep Culdesac to Prolapse of Rectum and Uterus and to Rectocele.**—The term "prolapse" in Jones' paper is intended to include those cases only in which there is a protrusion into or through the sphincter of the whole rectal wall. Cases of patients under 10 years of age are not considered. Jones cites cases in which colopexy seemed to offer no hope of curing the patients, hence an effort was made to restore the culdesac to its normal appearance, by closing it with purse-string sutures of silk; in addition to this, the rectum was attached to the pelvic peritoneum on either side, as high as the promontory, by silk sutures, in the hope of getting support from many attachments to the peritoneum. In the female, in addition to closing the posterior culdesac, the rectum was sutured to the posterior surface of the vagina and uterus, and a ventral fixation done. In many of these cases, especially the large prolapses, Jones says, it is important to do something else than closure of the culdesac, to aid in the support. At times removal of mucous membrane with the cautery will assist. In many, posterior rectopexy will be of great value. While the giving way of the posterior attachment is not the cause of prolapse, the posterior attachments are loosened and pulled down late in the course of the prolapse. Fixation, therefore, of this portion of the rectum must be of some value in holding up the rectum. While the dangers of closing the posterior culdesac, that is, injury to the ureters and to the great vessels, may seem considerable, Jones has had no complication in about twenty cases.

9. **Undescended Testicle in Children.**—In the past three years, thirty operations have been performed for the relief of this malformation at the Boston Children's Hospital. In seven cases the condition was bilateral; in nine, the right, and in seven, the left side was affected. In three cases the testis was intra-abdominal. In nineteen, it lay within the inguinal canal, and in eight cases it was just outside the external inguinal ring. In two cases, atrophy was noticed at the time of operation. In one, the testicle was enlarged and thought to be tuberculous, and there was an accompanying tuberculous peritonitis. The late result of operation was ascertained in twenty-six instances. The two patients in whom atrophy was noted at operation, showed no improvement in the development of the testicle, although the organ remained in the scrotum. There was atrophy in eight cases following operation. Interference with the enervation of the testicle has been suggested as a cause of atrophy following operation, but nothing to substantiate this view could be deduced from the operative records of these cases. The age at operation had no bearing on the occurrence of atrophy, it being no more frequent in the younger group than in the older in this series. The one factor present in every case in which atrophy occurred, was an interference with the spermatic circulation at operation.

These cases can be divided into three groups; in one, all the spermatic vessels were cut at operation to facilitate the placing of the testicle in the scrotum. In the second, a portion of the lesser vessels were divided and the three or four main trunks were left. In the third, the vessels were left intact; the latter group comprises fifteen operations. Of fourteen cases reporting there was no occurrence of atrophy following operation. There were five instances of partial division of the vessels. One patient did not report and in one there was postoperative atrophy. The vessels were completely divided in nine cases; seven patients reported and in every instance there was marked atrophy. In all the testicle was soft and no larger than a bean. At one operation the testicle could not be brought down and was replaced within the abdomen.

Bulletin of Medical and Chirurgical Faculty of Maryland, Baltimore

October, IX, No. 4

12 Reflections of a Medical Teacher. W. T. Councilman, Boston. —p. 52.

Canadian Medical Association Journal, Toronto

October, VI, No. 10

13 Psychogenetic Conditions. C. K. Russel.—p. 877.
14 *Malignant Edema. F. McK. Bell, Ottawa.—p. 882.
15 Epidemic Meningitis. W. T. Connell, Kingston.—p. 886.
16 Posture as Aid to Treatment. S. A. Smith, Granville.—p. 897.
17 Syphilis; Its Cause and Treatment. J. E. R. McDonagh, London. —p. 901.
18 Appendicovesical Fistula. M. Lauterman, Montreal.—p. 910.

14. **Malignant Edema.**—Of twelve patients seen by Bell, four died. The first of these because it was only a skin abrasion, and the disease was treated superficially only, without incisions. Two other patients were moribund on admission to the hospital. The fourth case was a compound comminuted fracture of the femur, at its upper third. An attempt was made to save the limb and several valuable hours were thus wasted. The amputation, which later proved inevitable, was not successful in checking the spread of the disease. In these patients deep incisions, under chloroform, were made almost to the bone by means of a 6-inch blade amputation knife, due care being taken to avoid main arteries or nerves. These incisions were 4 to 6 inches in length; they were afterward kept wide open with fenestrated rubber tubes, 1 inch in diameter and 6 inches long, passed transversely through the muscle to a counter incision. Not less than three, and in one patient six, of these large incisions were made. The wounds were then irrigated with large quantities of hydrogen dioxid, followed by a combination of hydrogen dioxid and phenol, 1:100, in equal parts. The wounds were packed lightly, but only temporarily, with gauze, which was left in just long enough to check bleeding. Dressings and irrigation were repeated every three hours, night and day. After the first dressing no gauze was left in the wound, but a very thin layer (two or three strips only) was laid over the opening to exclude dust and flies. No bandages were used. A high cradle held the bed clothes up, in order to admit plenty of air, and in cases in which it was possible the wound was exposed to direct sunlight.

Colorado Medicine, Denver

October, XIII, No. 10

19 Present Status of Roentgen Therapy. S. B. Childs, Denver.—p. 294.
20 Diagnosis of Incipient Tuberculosis. O. M. Gilbert, Boulder. —p. 300.

Florida Medical Association Journal, Jacksonville

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21 Cancer Problem. H. C. Taylor, New York.—p. 97.
22 Advantage of Early Diagnosis and Treatment of Tumors of Breast. L. F. Carlton, Tampa.—p. 103.

23 Case of Epithelioma Involving Deeper Tissue. M. Freeman, Perrine.—p. 106.
24 Case of Perithelial Angiosarcoma of Dorsum of Hand. P. C. Perry, Jacksonville.—p. 108.
25 Roentgen Rays and Living Cell. J. D. MacRae, Tampa.—p. 109.
26 Roentgenotherapy, with Special Reference to Certain Malignant Conditions, Tubercular Adenitis and Eczemas. J. P. Long, Lake City.—p. 111.
27 Differential Diagnosis of Lesions in Upper Right Quadrant. L. J. Efird, Tampa.—p. 117.

Journal of Laboratory and Clinical Medicine, St. Louis

October, II, No. 1

28 *Uric Acid in Its Relations to Metabolism. S. R. Benedict, New York.—p. 1.
29 *Poisonous Proteins. V. C. Vaughan, Ann Arbor, Mich.—p. 15.
30 Study of Tests of Liver Function. C. S. Foster and M. Kahn, Pittsburgh.—p. 25.
31 Some Technical Difficulties Involved in Comparison of Diazo and Urochromogen Tests. J. E. Pottenger, Monrovia, Calif.—p. 37.
32 Cases of Infection Terminating in Septicemia. P. G. Woolley, Cincinnati.—p. 44.
33 Clinical Methods for Determining Buffer Action of Blood. J. J. R. Macleod, Cleveland.—p. 54.
34 *Purity of Alcohol. V. C. Vaughan, Ann Arbor, Mich.—p. 57.
35 Water Bath Slide Methods for Complement Fixation and Blood Grouping. N. E. Williamson, Stockton, Calif.—p. 58.

28. **Uric Acid in Its Relations to Metabolism.**—The study of uric acid metabolism has been much hampered by the fact that no animal has been available for experimental purposes in which uric acid is an end product of metabolism or in which the essential features of human purin metabolism appear to be duplicated. It is therefore of interest to know that Benedict found an animal which appears to fulfil these conditions, and in which it seems probable that Benedict will find some of the missing links between the purin metabolism of man and other mammals. The animal in question is the Dalmatian breed of dog. It was at first supposed that the anomaly of purin metabolism existed only in the one individual but further examination has shown that it is probably a peculiarity of the breed of Dalmatians. Benedict has examined five animals more or less pure Dalmatians and in four of them found a very high uric acid elimination. The one exception was obviously not of very pure breed. For a period of nearly a year the animal has been on a purin-free diet and during nearly all this time the uric acid elimination has been determined daily. As a result of this study Benedict concludes that the adult mammal can synthesize purin from nonpurin material. During the period of observation the dog maintained a constant body weight and eliminated a total of more than 100 gm. of uric acid.

Two experiments were made on the Dalmatian to determine the effect of caffein given subcutaneously. A daily dose of 100 mg. of the drug was followed by a slight decrease in the uric acid output. With a larger dose (200 mg. daily) of caffein there was scarcely any perceptible effect on the uric acid output but there was a very notable retention of nitrogen during this period.

A man was placed on a purin-free diet which was kept approximately constant but which was not weighed. During the preliminary period five cups of a caffein-free coffee were ingested daily. During the caffein period the diet was just the same, but to each of the five cups of coffee taken were added 200 mg. of caffein, making a total of 1 gm. of caffein per day. The uric acid figures of the urine showed a slight but definite and progressive increase during the caffein period, which increase was still somewhat apparent for two days after the caffein intake was stopped. This experiment was so carefully conducted and the results were so clear cut that Benedict believes he is justified in concluding from it that caffein may lead to increased uric acid formation in man and furthermore that it may lead to some nitrogen retention. Caffein, even in small doses, probably is not quite so innocuous a substance as has been assumed. On the purin-free diet the uric acid nitrogen is more than double that of the allantoin, while after thymus ingestion the increase in uric acid nitrogen eliminated is only about one half the increase to be found in the allantoin nitrogen. These results might be taken to indicate that exogenous nuclear material undergoes catabolism along different lines from that of the endogenous purin containing material. Uric acid administered subcutaneously is followed by a marked increase in the allantoin output, and this in spite of the fact that the uric acid is recovered quantitatively as such in the urine. It seems probable that uric acid and allantoin are interrelated in metabolism in other ways than have been heretofore assumed.

29. **Poisonous Proteins.**—Vaughan's studies have led him to formulate a theory concerning the nature and operation of living matter. The cell is not the unit of life; life is molecular. Life is function, not form. The cell is not only made up of protein molecules, but its form and function are determined by the chemical structure of its constituent molecules. The lines along which the spore, seed or ovum develop are determined by the chemical structure of its proteins. Growth in other directions is impossible and this accounts for stability in reproduction. However, changes in the chemical structure may and do occur and in these lies the basis of variation. The keystone or archon of the protein molecule is the protein poison. It is common to all protein molecules. Physiologically it is the same in all molecules, that is, when set free it is a poison and it is poison on account of its intense chemism which enables it to tear off groups from other proteins. One protein differs from another in its secondary and tertiary groups. Most native proteins are not poisonous because in them the chemism of the primary group is satisfied by combination with secondary groups. Strip off the secondary groups and the primary becomes poisonous on account of the avidity with which they combine with the secondary groups of other molecules. Biologic relationship between proteins depends on the secondary groups. In this way varieties and species have developed.

The living molecule is never in a state of equilibrium. There is a constant exchange of atoms between it and the outside world. It absorbs, assimilates and eliminates. It is constantly trading in energy. It takes in oxygen and gives off phenol; it takes in nitrogenous material, and, having utilized it, the waste is discarded. The living molecule passes through the period of growth and decay. During the former its functions are largely synthetic; in the latter they are autolytic and finally the structure drops into pieces.

34. **Purity of Alcohol.**—Vaughan has found it inexpensive and safer to take the ordinary alcohol and distil it with quicklime than to use the alcohol imported from Germany (Kahlbaum's).

Medical Record, New York

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36 Hydrology in Military Practice. G. Hinsdale, Hot Springs, Va. —p. 751.
37 Agitophasia Associated with Agitographia. J. S. Greene, New York.—p. 754.
38 Arterial Hypertension; Symptoms, Significance, Sequelae and Management. H. F. Stoll, Hartford, Conn.—p. 757.
39 Milk and Communicable Diseases. L. R. Williams, Albany. —p. 760.
40 Rôle of Physicians' Sons in Lincoln Administration. W. Browning, Brooklyn.—p. 762.
41 Lesions of Frontal Lobes; Report of Three Cases. E. M. Williams, Sioux City, Iowa.—p. 764.
42 Eye Injuries as Related to Workmen's Compensation. F. D. Gulliver, New York.—p. 765.
43 Primitive Medicines; Emetics and Purgatives. J. B. Percival, Paramaribo, Dutch Guiana.—p. 768.

New York Medical Journal

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44 Anesthesia Reviewed. J. T. Gwathmey, New York.—p. 825. To be continued.
45 Sources of Errors in Diagnosis. E. C. Hill, Denver.—p. 830.
46 An Accessory Ovary. A. J. Smith and A. C. Wood, Philadelphia. —p. 835.
47 Therapeutics of Cerium. R. W. Wilcox, New York.—p. 836.
48 Treatment of Bladder Tumors. J. T. Geraghty, Baltimore.—p. 838.
49 Tumors of Bladder. L. Buerger, New York.—p. 841.
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51 Rectal Anesthesia. W. M. Johnson, New York.—p. 846.
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55 Treatment by Subcutaneous Injections of Distilled Water. G. A. Stephens, Swansea, England.—p. 850.

Ophthalmology, Seattle

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60 Salvarsan in Ocular Conditions. D. C. Orcutt, Chicago.—p. 44.
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62 Bony Tumor of Vitreous Chamber Springing from Ciliary Body. H. H. Brown, Chicago.—p. 53.
63 State Legislation Concerning Shop Lighting, Shop Accidents, Shop Conditions, Common Towel, etc. F. Allport, Chicago.—p. 58.

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67 Sanitation of Modern Military Camp. J. W. S. McCullough, Toronto.—p. 441.
68 Carriers of Disease. J. Grant.—p. 444.

South Carolina Medical Association Journal, Greenville

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70 Lagging Intestine; Constipation. G. M. Niles, Atlanta, Ga.—p. 305.
71 Tonsillectomy and Prevention of Subsequent Hemorrhage. E. F. Parker, Charleston.—p. 311.

Southwest Journal of Medicine and Surgery, El Reno, Okla.

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72 Some New Ipecac Therapy. G. W. West, Eufalfa.—p. 291.
73 Oral Hygiene and Its Relation to Ill Health. L. G. Mitchell, Oklahoma City.—p. 239.
74 Treatment of Acute Cranial Injuries, with Special Reference to Intracranial Pressure. C. von Wedel, Jr., Oklahoma City.—p. 307.

Surgery, Gynecology and Obstetrics, Chicago

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75 *Etiology and Pathology of Nontuberculous Renal Infections. H. Cabot and E. G. Crabtree, Boston.—p. 495.
76 *Bastedo Sign in Chronic Appendicitis. J. Rosenbloom, Pittsburgh.—p. 538.
77 Postoperative Complications of Lane Short Circuit and Colectomy. R. Smith, Los Angeles.—p. 539.
78 Circular Constriction in Treatment of Fractures of Long Bones. F. W. Parham, New Orleans.—p. 541.
79 Parham and Martin Band in Oblique Fractures. F. B. Lund, Boston.—p. 545.
80 *Nails and Screws in Joint Surfaces. A. T. Mann, Minneapolis. p. 550.
81 *New Mechanically and Surgically Correct Method of Bone Grafting. P. B. Magnuson, Chicago.—p. 554.
82 *Etiologic Study of Ovaritis. C. H. Davis, Chicago.—p. 560.
83 *Leukocytes in Pregnancy, Labor and Puerperium. J. L. Baer, Chicago.—p. 567.
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87 Ectopia Testis Transversa with Infantile Uterus. A. E. Hertzler, Kansas City, Mo.—p. 597.
88 Primary Chorio-Epithelioma of Fallopian Tube Following Ruptured Ectopic Gestation. H. J. Hartz, Philadelphia.—p. 602.
89 Chondroma of Pelvis; Report of Cases. J. H. Wagner, Pittsburgh.—p. 604.
90 Application of Anoci-Association to Obstetrics. C. L. Hoag, San Francisco.—p. 612.
91 Perineal Anesthesia in Labor. R. W. King, Denver.—p. 615.
92 *Operation for Backward and Downward Displacements of Uterus. J. M. Allen, St. Johnsbury, Vt.—p. 618.
93 Spontaneous Evolution in Shoulder Presentations; Report of Case. R. M. Carter, Green Bay, Wis.—p. 620.
94 Blood Transfusion with Paraffin-Coated Needles and Tubes. B. Vincent, Boston.—p. 621.
95 *Wiring Through Obturator Foramen for Symphysis Pubis Separation. S. J. McNamara, Brooklyn.—p. 625.
96 *Transplantation of Abductor Hallucis Tendon in Surgical Treatment for Hallux Valgus. J. E. Fuld, New York.—p. 626.
97 Apparatus for Use After Harelip Operations. H. L. Smith, Nashua, N. H.—p. 628.
98 An Improved Substitute (Potassium Mercuric Iodid) for Iodized Catgut Sutures. C. H. Watson, Brooklyn.—p. 629.

75. **Nontuberculous Renal Infections.**—A careful and thorough analysis of a considerable number of cases was made by Cabot and Crabtree. They believe they have succeeded in establishing the fact that the pyogenic organisms produce lesions of the kidney essentially different from those produced by nonpyogenic organisms. This fact has an important bearing on diagnosis. Organisms concerned in renal infections appear promptly in the urine though they may not long continue to so appear. Organisms not concerned in renal infections may also appear in the urine. With clinical evidence suggesting a renal infection, the diagnostic importance of a careful examination of the urine can hardly be overestimated. Thus the lesions characteristic of pyogenic organisms will show the bacteria in the urine perhaps only during the early stages. Since, however, these lesions are comparatively shut off from the lower portions of the kidney and as they do not involve the pelvic mucous membrane, pus in any considerable amount, will be found rarely if at all. By the same token, since the lesions of the nonpyogenic group are produced chiefly in the renal pelvis, evidence of this fact is abundantly clear in the urine by the early production of pus accompanying the appearance of the micro-organisms.

A very striking difference is also to be observed in the effect on kidney function as measured by phthalein of these two types of infection. Since the suppurative infections involve chiefly the cortex and comparatively little the convoluted tubules, they would be expected to produce comparatively little effect on kidney function thus measured, and such is in fact the case. On the contrary the chief lesion of acute renal infections with the colon bacillus group is first on the convoluted tubule, the pelvic lesion, though appearing early, being secondary to the tubular lesion. This should, and, in fact, does produce sudden and profound changes in kidney function. Briefly stated, the diagnostic evidence is as follows: If with clinical evidence suggesting a renal infection, freshly drawn urine shows cocci in abundance with a small amount of albumin, a few red blood corpuscles and many leukocytes or a little pus, together with a renal function at or near normal limits, a diagnosis of coccus infection of the kidney is justified. If, on the other hand, a similar examination shows many bacilli, a little albumin and much pus, with a markedly diminished kidney function, a diagnosis of colon bacillus infection of the kidney is unavoidable.

Clearly the suppurative lesions concern those portions of the kidney which are relatively inaccessible to drugs, and if these lesions are such as to require treatment, that treatment must be operative. On the other hand, the lesions produced by the colon bacillus group concern those portions of the kidney relatively accessible to formaldehyd-containing drugs, and the surgeon is therefore justified in persisting in treatment by this method on the assumption that if it be properly planned and efficiently carried out it will succeed in controlling the infection.

76. **Bastedo Sign in Chronic Appendicitis.**—Rosenbloom is convinced that this sign is of great value in the diagnosis of chronic appendicitis. It consists in passing a colon tube 11 to 12 inches into the rectum and injecting air by means of an atomizer bulb. As the colon distends, pain and tenderness to finger-point pressure becomes apparent at McBurney's point, if appendicitis is present.

80. Abstracted in THE JOURNAL, Jan. 15, 1916, p. 218.

81. **Correct Method of Bone Grafting.**—Magnuson cuts a short graft from the fractured end of the most convenient fragment, either proximal or distal. This graft is cut in the shape of an extremely long sided truncated cone. The end of the graft which forms part of the fractured surface is exactly the width of the medullary cavity, and the end farthest from the fracture not over an eighth of an inch wider than the medullary cavity, the graft being from 1½ to 2 inches long and covered by periosteum. The sides of the graft being cut out with the circular motor driven saw, the end of the graft is freed with a thin bladed chisel. The opposite fragment is then angulated slightly out of the wound, and the graft driven in to the end of the medullary

cavity to half its length. On account of its wedge shape it fits snugly. The fragment is then brought back into line with its fellow, and the protruding end of the graft is driven down into the slot out of which it came. This being the wider end, allows for the thickness of the saw blade on each side and yet allows the graft to come closely in contact with the walls of the cortex on each side and sink down into the medullary cavity. The result now is that one end of the graft is firmly driven into the end of the medullary cavity of one fragment, the other end being driven into the lower end of the slot out of which it came. There is no way of angulating these fragments except by one end of the graft slipping out of the slot or keyway. This is provided against by drilling through the graft and the opposite cortex, tapping a thread in the bone and putting through an ivory screw which holds the key firmly down in the keyway. The screw is then cut off flush with the graft, leaving nothing protruding beyond the cortex on one side or the graft on the other, and leaving a 1 inch trough above the graft to be filled in with new bone.

82. See THE JOURNAL, April 15, 1916, p. 1175.

83. **Leukocytes in Pregnancy, Labor and Puerperium.**—According to Baer there is a leukocytosis of pregnancy, appearing in the ninth month, slight in amount, and especially noticeable in primiparas. The leukocytosis of labor is marked in primiparas, averaging 18,255, and is increased by a duration of labor beyond twenty-four hours. It is less marked in secundiparas, and is slight in women who have borne more than three children. The height of the curve in primiparas and multiparas is reached on the first day of the puerperium, after which there is a rapid and constant decline to the tenth day, at which time the curve is about at the normal level. The onset of lactation does not influence the leukocyte count, except that in the fourth day primiparas there is a slight secondary elevation on the preceding day—about 1,500 to 2,000. Age is not a factor, except in primiparas aged 20 years and under, in whom the leukocytosis is higher than in any other group. Differential analysis showed the increase in leukocytes to be chiefly in the polymorphonuclear neutrophils with a return to normal proportions by the third day of the puerperium, an absence of eosinophils in about half the cases in labor, and their reappearance in normal proportions on the first day of the puerperium. The lymphocytes, large and small, mast cells and transitional types, show nothing unusual. The Arneth analysis showed a displacement toward the left; that is, toward Classes 2 and 3, but this was not constant and no pertinent deductions could be drawn.

92. **Operations for Displacements of Uterus.**—Allen opens the abdomen in the midline by a 4-inch incision, the lower limit of which is about 1½ inches above the symphysis pubis. The skin and fat are pushed back from the edges for one-half inch throughout the whole length of the incision and any work on the adnexa or lower abdominal contents is carried out. Holding the edge of the rectus sheath taut, a strip of this about one fourth of an inch wide is cut from the margin as long as the incision. The upper end is severed and the lower end is left attached. The uterus is next brought up high enough to make the posterior surface easy of access as low as the origin of the round ligaments, and a shallow cut is made across this surface from the origin of one round ligament to the same point on the other side. In making this cut the knife is held at an angle to the uterus of 45 degrees so that later on the incision may be completely closed. The uterus is then drawn to one side and held firmly while the next step is taken. An 8-inch hemostat, with jaws curved to a right angle with the blade, is thrust from behind forward through the broad ligament on a level with the end of the incision on the posterior surface of the uterus and made to traverse the following structures in the order named: the parietal peritoneum and posterior rectus sheath, the fibers of the rectus muscle. Then it is made to emerge at the edge of the wound without having pierced the anterior sheath of the rectus, and at or near the level of the lower end of the incision in this latter structure. The jaws of the hemostat are then opened and the free end of the strip of the rectus sheath previously cut is grasped and the hemostat is withdrawn until the jaws appear at the point at which they entered; that is, at the end of the groove in the uterine wall just below the round ligament.

The same procedure is carried out on the opposite side, the ends of the strips are cut to proper length if too long, and they are then sutured carefully to the bottom of the groove with twenty-day catgut. The ends may be made to meet in the midline of the uterine wall or may overlap. The cut in the uterus is then sutured with fine gut and one or two stitches are made to include the strip, the round ligament and the broad ligament on either side. The uterus will then be in excellent position, hanging free and unattached to other structures and no raw surface for adhesions will be found other than the small area on the two small strips of aponeurotic tissue, which is almost negligible in amount.

95. **Wiring Through Obturator Foramen for Symphysis Pubis Separation.**—McNamara reports a case in which there was a 4-inch separation of the symphysis pubis, protrusion of the bladder between the separated bones, ankylosis of the sacro-iliac joints; invalidism, failure of postural and supportive measures. Restoration of the pelvic girdle was accomplished by wiring through the obturator foramen.

96. **Surgical Treatment of Hallux Valgus.**—Fuld transplants the tendon of the abductor hallucis from its usual insertion in the plantar surface of the base of the first phalanx to the periosteum covering the middle of the inner surface of the same bone. He also does a bone section of the exostosis, when possible, without resection of the head and follows this by suture of the capsule over the denuded bone area, deep to the transplanted abductor tendon, to prevent involvement of the transplanted tendon in the subsequent and inevitable callus.

West Virginia Medical Journal, Huntington

November, XI, No. 5

99 Advances in Study of Syphilis and Recognition of Obscure Forms of Disease. L. F. Barker, Baltimore.—p. 153.
100 Professional Efficiency vs. Professional Inertia. C. O. Henry, Fairmont.—p. 158.
101 Practical Work for Health Officers. H. B. Wood, Charleston.—p. 165.
102 Diagnosis and Treatment of Nontoxic Goiter. C. M. Scott, Bluefield.—p. 169.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

October 14, II, No. 2911

1 Morphin Hyoscin Method of Painless Childbirth. F. W. N. Haultain and B. H. Swift.—p. 513.
2 *Retraction of Uterine Muscle Associated with Obstructed Labor; Report of Two Cases. H. T. Hicks.—p. 515.
3 Breathlessness in Soldiers Suffering from Irritable Heart. T. Lewis and others.—p. 517.
4 *Estimation of Myocardial Efficiency. J. S. Goodall.—p. 519.
5 Bock's Stethoscope as Aid to Determining Efficiency of Myocardium. J. Ramsay.—p. 521.
6 *Epidemic Cerebrospinal Fever. E. C. Hort and A. H. Caulfeild.—p. 522.
7 Life History of Meningococcus and of Other Bacteria. J. G. Adami.—p. 525.

2. **Retraction of Uterus in Obstructed Labor.**—According to Hicks, this condition is not often recognized. In all these cases there is some form of contraction or distortion at the pelvic brim. The fetal head does not engage and remains high above the brim, and is very mobile. The uterus continues to contract and retract. The membranes rupture early and the cervix hangs down unfilled by the presenting part. At some time after the membranes rupture the uterine muscle passes into a state of tetany, and since the neck of the fetus is high above the brim, it lies within the retractile zone of the uterine muscle. A firm mass of muscle forms round the neck of the fetus and grips it, so that the shoulders can neither pass through nor can the fetal head rise. The uterine cavity has therefore become hour-glass in shape. The upper cavity contains the trunk and the lower the head. As retraction progresses the uterus molds itself to the fetal trunk

and neck, while the lower zone becomes progressively thinner. This condition may come on a few hours after the rupture of the membranes. If there is room enough to allow of forceps delivery, and the fetal head is high above the brim and movable, the patient may be placed deeply under chloroform and morphin. If moderate traction fails to bring the head into the pelvic cavity, and if, when the traction is released, there is an elastic recoil of the fetus and uterus, no further attempt should be made. Cesarean section is the only safe means of delivery, making it even possible to save the child as well as the mother. It is absolutely wrong to persist in any further attempt at delivery from below.

Hicks makes the following suggestions: 1. Be on your guard when dealing with a short, thickset woman with a square head and short long bones. 2. A high position of the fetal head, occurring in a primipara, should at once denote serious trouble. 3. Measure the diameters of the pelvis, but do not place too much store on your estimate. 4. Cut and dried rules on pelvimetry are useful only in severe contractions of the pelvis. 5. To apply forceps to a fetal head which is movable and high above the brim is an obstetric operation requiring the most careful consideration, and should only be undertaken after careful examination of the condition of the uterine muscle around the neck of the fetus. If the examining hand can be passed easily beyond the shoulders of the fetus, an attempt at delivery with instruments may be made. If there is the least evidence that the uterine muscle is retracting round the neck of the fetus, cesarean section should be performed at once. When once the retraction ring has formed around the neck of the fetus, it will grip it firmly until the patient is almost at the point of death.

4. **Estimation of Myocardial Efficiency.**—This article is based on 2,000 observations made on healthy and diseased hearts during the past five years. The physiologic heart of the healthy young adult responds to increased work by increased contraction—the rate increases, the blood pressure rises, and the respirations increase. The increase in the heart rate, in the blood pressure and respirations, is gradual, while a definite relationship is still maintained between the pulse rate and respirations. The slow "super heart" of the well trained athlete also responds to increased work by increased contraction and a raised blood pressure, but whereas the heart of the "ordinarily" trained individual gradually increases in frequency, that of the athlete suddenly "practically" doubles its rate. The pathologic or diseased heart in which the myocardium is at all impaired responds to increased work, not by increased contraction, but by dilatation, so that, although the frequency is increased (often out of all proportion to the amount of exercise taken), the blood pressure either fails to rise or actually falls, according to the amount of myocardial damage present and the amount of work done. Furthermore, the dyspnea and general distress are often marked, while the normal pulse respiration ratio is frequently disturbed. Finally, irregularities of various kinds murmurs, or pulsations, not previously present, may make their appearance. The methods usually adopted by Goodall and found to be quite satisfactory were the simple stair test; the exerciser test; the inclined plane test and the progressive exercise reaction. Concluding Goodall points out that it is not possible at present to cure heart disease, to dilate stenosed orifices, or repair leaky valves, but it may be possible to get the best out of a defective heart by putting that heart to work under the best possible physiologic conditions, and the key to this should be a knowledge of what a normal heart can do, and how it does it.

6. **Epidemic Cerebrospinal Fever.**—The following conclusions based on intraperitoneal and subcutaneous injection are drawn by Hort and Caulfeild. The pathogenicity to monkeys of cerebrospinal fluid from acute cases of cerebrospinal fever appears to tend to vary inversely as its meningococcal content. The cerebrospinal fluid in this disease sometimes contains a filter passing agent which is not the meningococcus, but which is nevertheless capable of producing in monkeys continued fever or death. This filter passing agent appears to be a living virus capable of cultivation in the laboratory, and of passage through monkeys. None of the pathogenic results recorded can be reasonably attributed to the action of living meningococci as such, or to the direct or indirect action of a meningococcal toxin. The pathogenicity of cultures of the meningococcus appears to be due to the concomitant presence of the filter passing virus described. The pathogenic effects observed in the monkeys injected, whether with cultures of meningococci, with filtered or unfiltered cerebrospinal fluid, or with cultures of X, did not include gross pathologic changes in the cerebrospinal system.

Medical Journal of Australia, Sydney

September 30, II, No. 14

8 Drugs in Obstetric Practice. T. W. Lipscomb.—p. 267.
9 Treatment of Adherent Placenta. D. Kelly.—p. 270.
10 Deterioration of Sweetened Condensed Milk. T. Cooksey.—p. 271.
11 Serum Treatment of Hemorrhage of Newborn. E. Ludowici. —p. 273.
12 Dystocia Due to Ventro-Suspension of Uterus. C. E. D'Arcy. —p. 274.

Archives de Médecine des Enfants, Paris

September, XIX, No. 9, pp. 449-504

13 Advantage of Opening Abscesses in the Throat Without Cutting. (Ouverture, sans bistouri, des abcès rétro-pharyngiens et amygdaliens.) J. Comby.—p. 449.
14 *Familial Heart-Liver Syndrome in Children, with Death in Asystole. (Sur une maladie infantile et familiale caractérisée par un syndrome cardio-hépatique et mort en asystolie.) L. Morquio (Montevideo).—p. 465.
15 *Mongolian Idiocy; Four Cases in One Family. L. Babonneix and J. Villette.—p. 478.
16 *Primary Chronic Ileocecal Invagination in Two Children. M. Lavergne.—p. 482.

14. **Familial Heart-Liver Syndrome in Children.**—Morquio insists that the syndrome he describes is special and new, that is, he has not been able to find anything like it on record although adhesive pericarditis has certain features in common with it. He observed it identical in three of the ten children of a healthy couple who had always lived on a farm in Uruguay. The other children are healthy. Those affected were two girls and one boy, apparently healthy until about 6, 8 and 11, when they developed a rapid and progressive malady which proved fatal in a few months to a year. The children suddenly began to grow apathetic and depressed, with puffy face and edema and other signs of heart disease which soon proved fatal from the progressive asystoly. The heart and liver became hypertrophied, with cyanosis, edema and ascites, but the blood picture seemed normal. The spontaneous and familial character of the disease and the total absence of tuberculosis and syphilis in the family distinguished the syndrome from cardiohepatic cirrhosis (Hutinel's disease).

15. **Mongolian Idiocy.**—The four children, all girls, presented this type of idiocy, with malformation of the teeth and certain symptoms suggesting pluriglandular insufficiency. The father is a robust mason with no signs suggesting syphilis except leukoplakia on the tongue. The mother died of tuberculosis at 57. The question arises whether inherited syphilis is responsible for the idiocy of these children. They present none of the usual stigmata of syphilis, but the mother had two abortions and of her ten children six died in early childhood.

16. **Chronic Invagination.**—The two boys were 11 and 13 and the invagination was primary. The appendix was removed but was sound to the naked eye. Blood in the stools of a child should always suggest invagination. The blood may escape detection unless sought for, as it may be masked by mucus. When no tumor can be palpated, the first assumption is dysenteriform enterocolitis, but the abrupt onset of trouble or transient attacks of pain should suggest invagination. In the two cases here related the pulse was 118 and 90 to 100, while the temperature was normal. The abdomen was depressible and not tender, and nothing abnormal could be palpated at first but finally the invagination could be felt in the left flank. Sudden pain, vomiting and bloody stools were the main symptoms. The invagination was easily reduced in both cases when the abdomen was opened but one child succumbed a day or two later. No signs of peritonitis were observed in either case at the laparotomy.

Paris Médical

October 7, VI, No. 41, pp. 289-328

17 *Evaluation of Functional Incapacity. (L'évaluation des incapacités fonctionelles.) J. Camus.—p. 289; (L'appréciation du degré d'invalidité après les blessures de guerre.) A. Broca.—p. 298; (De l'évaluation des incapacités dans les attitudes vicieuses sans rapport avec des lésions organiques appréciables.) H. Claude. p. 300.

18 Capacity for Military Service and Work after Trephining for a Skull Wound. André-Thomas.—p. 306.

19 Electric Tests of Functional Incapacity. (L'électro-diagnostic et le radiodiagnostic du dossier de réforme.) Larat and Haret. —p. 311.

20 Measurement of Functional Impotency. Cololian.—p. 314.

21 Reexamination Later and Supplementary Treatment of the Incapacitated. (Un centre spécial pour examen et traitement complémentaire des blessés réformés.) J. Camus and O. Riche. —p. 320.

22 Pensions for the Incapacitated. (Pensions de retraite et gratifications de réforme.) Dercle.—p. 323.

17. **Evaluation of Functional Incapacity.**—This whole number of the *Paris Médical* is devoted to the questions connected with the discharge of men from the army on account of the results of wounds, and those connected with their right to and the amount of the pension for disability. A number of mechanical devices are described which ensure mathematical accuracy in the findings.

Presse Médicale, Paris

October 5, XXIV, No. 55, pp. 437-444

23 Intramuscular Injections of Colloidal Preparation of Gold in Typhoid. (Comment doit-on employer l'or colloidal dans le traitement des fièvres typhoides?) Salomon.—p. 437.

24 Reflex Motor, Vasomotor and Trophic Disturbances Consecutive to Disarticulation of Finger. Porot.—p. 439.

October 9, No. 56, pp. 445-452

25 *Gastrojejunostomy for Chronic Ulcer of the Stomach. (Traitement de l'ulcère chronique de l'estomac.) V. Pauchet.—p. 445.

26 Chronologic Study of Return of Functions in Injured Nerve. (Chronologie des manifestations de la restauration nerveuse.) Chartier.—p. 448.

27 Fracture of Trapezoid. A. Mouchet.—p. 452.

25. **Treatment of Chronic Gastric Ulcer.**—Pauchet gives twenty illustrations of the principal findings with the various types of chronic gastric ulcer, and the best operative means to combat them, especially when the pancreas or bowel is involved. For cancer and ulcer of the lower part of the stomach he prefers to cut the stomach across, almost at right angles, and suture to this a loop of jejunum, first suturing together the arms of the loop and cutting off the arch of the loop. The duodenum is cut off at the pylorus and this end of the loop is left as a blind pouch. The stomach soon becomes continent after this operation, and the digestive functions clinically normal. He thus insists that the proper treatment for chronic gastric ulcer of the lesser curvature is not gastro-enterostomy but segmental gastrectomy.

Progrès Médical, Paris

September 20, XXXI, No. 18, pp. 163-182

28 *Lessons from Two Years of Warfare in the French Trenches. (Des enseignements de la guerre Germanique sur le front français.) E. Delorme.—p. 163.

29 Biochemical and Biologic Study of Certain Bacilli of Paratyphoid Group. A. Sartory.—p. 178.

October 5, No. 19, pp. 183-192

30 Flaring Up of Malaria in Extinct Foci in France. (Sur la reviviscence d'anciens foyers paludiques en France.) G. Etienne. —p. 183.

31 Contracture from Tardy Tetanus. (Les contractures du tétanos tardif à évolution prolongée et leur diagnostic avec les contractures organiques ou "fonctionnelles.") H. Claude and J. Lhermitte.—p. 185.

32 Partial Epilepsy Subsides after Extraction of Projectile in the Brain. H. Aimé and E. Perrin.—p. 187.

28. **Lessons from Two Years of Warfare.**—This communication from the Inspector General of Medical Affairs in the French army opens with a comparison of this and previous wars, and reviews the new problems that have had to be solved at each of the main epochs of the war, from the battles at the frontier, at the Marne, and in Flanders, down to Verdun. Delorme says of antityphoid vaccination that, although as a preventive it has not proved as effectual as was hoped, it certainly has materially reduced the mortality. He relates that the medical corps of the army has suffered from the enemy's fire almost as much in proportion as the infantry, and more than the artillery, the cavalry, the engineering corps and the staff. He does not agree with those who think that there is only one surgery, declaring that we must accept not only a surgery of peace and a surgery of war, but realize also that war surgery has many and varied aspects. The present war has upset all our preconceived ideas not only in regard to arms but also in regard to the various services. It was not until the war became trench warfare that the medical corps could get the wounded and care for them with comparative facility.

The course of a gunshot or shell wound is generally determined by extrinsic contingencies. At present, fully 85 per cent. of all wounds are from shells and grenades; about 1 per cent. is the average of bayonet wounds, and 10 per cent. bullet wounds. Exploding shells are taking the place of shrapnel. Their effects are more disastrous at short range but the flying scraps soon lose their impetus. The machine gun is particularly deadly when fired from a cellar-way to sweep a street, its muzzle only a foot or two above the ground. This wounds legs and abdomens, the projectiles going through man after man as the troops charge up the street. The destruction of tissues increases at each passage, as the bullet is accompanied by scraps of clothing, etc. The fact that the bombarding is almost incessant often renders the collecting of the wounded practically impossible, but the medical officers and the litter bearers accomplish it somehow. Fully a hundred physicians have already lost their lives at this task alone. The transportation of the wounded in the trenches is hampered by the bringing up of food and munitions, and the wounded are often tended in holes just dug by a big shell. As the war has progressed, the primary surgical measures have been applied closer and closer to the firing line, until now this service is practically concentrated at the front. The arrangements for this at Verdun have been excellent from the first. Surgical measures are applied very close to the battlefield and under convenient and comfortable conditions with the very best surgical skill.

To illustrate different points in his article, Delorme cites instance after instance of almost superhuman devotion, energy and sangfroid on the part of members of the profession tending the wounded. Dr. Espagnon, for example, had his left foot shot off by a shell which wounded two officers near him. He tended their wounds and dressed them before attending to his own wound.

Berliner klinische Wochenschrift

September 18, LIII, No. 38, pp. 1041-1064

33 *Rubbing Off of Substance on Upper Surface of Vertebrae. ("Abwetzung" an den Endflächen der Wirbelkörper.) H. Virchow.—p. 1042.

34 *War Nephritis. (Zur Kenntniss der Kriegsnephritis.) C. Kayser. —p. 1043. (Zur Entstehung der Nierenerkrankungen im Felde.) Hirschstein.—p. 1045; (Ueber die in diesem Kriege beobachtete neue Form akuter Nephritis.) B. Ullmann.—p. 1046.

35 Desiccated Potato. (Ueber die Anwendung eines neuen Kartoffel-Trocken-Präparates für zeitgemässe eiweissarme Ernährung und Diabetes-Diät.) Hochhaus, Küster and H. Wolff.—p. 1050. Concluded.

36 Traumatic Neuroses after War Injuries. (Die traumatischen Neurosen, ihre klinischen Formen und ihr Entstehungsmodus bei Kriegsverletzungen.) L. Mann.—p. 1053.

33. **"Grinding Down" of Upper Surface of Vertebrae.**—Virchow explains that this term does not really apply in these cases as the interposed fibrocartilage prevents actual grinding, but the appearance and effect are practically a flat wearing off of the upper surface of the body of the lumbar or dorsal vertebrae. He has found it in cadavers and in monkeys. It is a simple atrophy and comes, he thinks, from a stooping attitude bringing extra strain on the intervertebral disks.

34. **War Nephritis.**—Kayser reports that a number of cases of acute hemorrhagic nephritis were brought to the hospital in his charge near the front, and each of the men was under surveillance for about ten weeks. Systematic investigation of each case was made to determine the date and place of the onset of the disease, the quarters, the food, vermin, vaccinations, previous infectious diseases, military duties and early symptoms. The data thus collected showed no connecting

links except that all the men had been infested with vermin. This was the only feature common to all cases. The nephritis ran a regular and favorable course as a whole. Some of the men had edema and practically all had albumin, blood and tube-casts in the urine. The tonsils were apparently normal in all but one case, and there was uremia in only two cases. In one of these during convalescence herpes developed over the whole of the lower part of the face, and one eye became inflamed, with optic neuritis and blindness of that eye. The other eye was not affected and complete recovery followed.

The prodromal symptoms were cough, dyspnea and diarrhea or constipation; in a few cases there was fever at first, subsiding as the bowels were regulated. A period of incubation was evident, to a maximum of three weeks. About the third week of the disease, there was a dandruff or bran-like scaling of the scalp and brow to which he paid no attention at first, but when the scaling spread to the cheeks and nostrils he examined for signs of desquamation elsewhere and found the hands peeling as with actual scarlet fever. This desquamation process ran a regular course from the third to the seventh week, and it proved possible to sift out the men who had been having nephritis by this peeling of brow and scalp. The conclusion seems evident that the disease is a scarlatinoid nephritis, possibly transmitted by lice. Kayser remarks that the exceptionally long surveillance over the cases explains the discovery of the desquamation which others may have missed.

Hirschstein draws the conclusions from his experience with war nephritis that climatic influences and a diet making special demands on the kidneys easily explain the development of nephritis in men over 35. Not one of his patients in this category were under this age.

Ullmann emphasizes the points which distinguish the new form of nephritis from the hitherto known types of acute nephritis. Especially the actual desquamative findings in the hemorrhagic urine, and the disappearance of these findings while the blood persisted in the urine. With other types of nephritis, the red corpuscles are the first of the formed elements to vanish from the urine. The findings of merely many casts and few leukocytes in one case of acute nephritis with high fever excluded the new type, and the nephritis proved to be the first manifestation of typhoid. With the new type the onset is sudden and stormy, the face puffing, with edema of hands and feet. The fever soon subsides, the long stage of hematuria and leukocyturia being afebrile. The albuminuria and edema were the last symptoms to subside. In some cases there was rebellious cystitis or pyelitis; in others the edema occurred alone with apparently normal urine. No tonsillitis was known in any case, and the disease did not seem to be contagious. One man returned from a ten-day furlough with it, showing that the diet alone cannot be incriminated. The infection localizes in the urinary apparatus. Injury of the walls of the capillary vessels is responsible for the hematuria and edema, and is the longest to persist of all the lesions. Repose and a bland diet were the main reliance in treatment. The men were transferred to a base hospital before the hematuria and leukocyturia had subsided. There were two deaths from anuria in the total number.

Correspondenz-Blatt für Schweizer Aerzte, Basel

October 7, XLVI, No. 41, pp. 1281-1312

37 The Social Instincts and Sentiments in Idiots and Imbeciles. (Die sozialen Gefühle und Triebe bei den Dementen.) P. Sokolow and R. S. Birnbaum.—p. 1281.

Medizinische Klinik, Berlin

September 17, XII, No. 38, pp. 991-1014

38 *Influencing of Diabetes by the War. (Ueber die Beeinflussung des Diabetes mellitus durch den Krieg.) C. von Noorden.—p. 991.

39 Deafmutism from Shell Explosion Nearby Injuring Medulla Oblongata. (Die durch Granatfernwirkung entstandene Taubstummheit, eine medulläre Erkrankung.) A. v. Sarbo.—p. 995.

40 Zones of Hyperalgesia after Skull Wounds and Concussion. (Hyperalgetische Zonen bei Kopfschüssen, Schädelbasisbrüchen, Gehirnerschütterung.) K. Hanusa.—p. 999.

41 Devices to Correct Radial and Peroneal Paralysis. (Radialisschiene und Peroneusschuh. Allgemeine Grundsätze der Wundbehandlung.) Spiegel.—p. 1001.

42 The Instinct for Care of the Young among Mammals. (Brustpflege und Jungenfürsorge bei Säugetieren.) A. Sokolowsky.—p. 1003.

43 Social Insurance and the War. (Sozialversicherung und Krieg.) Hanauer.—p. 1012. Summarized in "War Notes," p. 1459.

38. **Diabetes and the War.**—Von Noorden discusses the influence of the war on patients with diabetes before the war and those who have developed it during the war, treatment and the question whether diabetics are capable of military service. He has briefly examined about 100 diabetic officers and men in the last two years, but does not include these in his discussion, limiting it to fifty-four diabetic patients who have been staying at his private clinic for several weeks or months. Of this number, about a third were long known as diabetics, but in thirty-seven the symptoms have come on since the war began. Four of the old diabetics were officers between 35 and 42 who had kept their severe diabetes under control and did garrison duty efficiently. Under the stress of war, they collapsed entirely in the course of a few months. Those with mild diabetes, after a period of exacerbation, found that their tolerance for carbohydrates was higher than ever before the war, but the sugar content of the blood kept high, and by the end of three months came the collapse. The interval was longer in officers, and up to a year or longer in those never on service on the firing line. All those officers who held out longer than three months at the front were all over 40, and thus had passed the age when diabetes is most liable to a malignant course. No exaggerating influence on the diabetes from a tendency to neurasthenia could be detected. In fact, the manifestations of the neurasthenia became marked only after return home. In very few instances was there any tendency to exacerbation of the diabetes by wounds incurred, but an intercurrent infectious disease was often followed by aggravation of the diabetes. This is readily explained by infectious-toxic injury of the pancreas islands. Diabetes seems to protect against acute nephritis; there were no cases of acute nephritis among the diabetics although this disease occurs so exceptionally often during this war.

He remarks that among the 10,000 diabetics in his charge during the last twenty years, only three developed acute nephritis, which is remarkable, considering the great frequency of chronic nephritis among diabetics. In thirty-seven cases the diabetes developed for the first time during active service; in seventeen in a severe form in from three to eighteen months. In three of the seventeen severer cases and in seven of the twenty milder ones, other members of the family had diabetes. In the mild cases the sugar disappeared from the urine under a few days of rest and dieting, but in all the groups the sugar content of the blood kept high. He emphasizes that the hyperglycemia is of far greater import for the treatment and prognosis than the glycosuria in these mild cases. When it keeps high it shows that the sugar metabolism is deranged much more than would be surmised from the urine findings and general condition. In many cases in which others had diagnosed harmless alimentary or neurogenous glycosuria, his diagnosis from the sugar content of the blood had been "true and progressive diabetes," and it had always been confirmed by the later course of the case. This applies with special force to the "war diabetics" with hyperglycemia of 50 or 100 per cent. higher values.

In these and all cases of diabetes he warns against dropping dietetic restrictions at once when the sugar disappears from the urine. This is the very time when systematic, long continued dietetic restrictions have done the most good with the least possibility of harm. He is convinced that diabetes develops only in those predisposed from birth or with acquired injury of the pancreas. Infectious-toxic changes in the Langerhans islands are probably responsible for it more frequently than generally recognized. This is liable to occur with any infectious disease. Tonsillitis or other acute infectious disease was known in 15 per cent. of his cases, and one man had been vaccinated against both typhoid and cholera, with an exceptionally violent febrile reaction, a few weeks before the sugar appeared in the urine. Nervous stress alone is scarcely able to elicit diabetes although it may transiently increase the glycosuria and entail complications by whipping

up the suprarenals to excessive functioning. The experiences of this war, with its enormous demands on the nervous system, will solve the question—like a natural experiment on a huge scale—whether there is ground for assuming the possibility of chronic neurogenous and traumatic diabetes. Neurogenous impulses may reach the pancreas indirectly; central nervous system—sympathetic—suprarenals—blood—liver, and the excess of hormones thus produced may in time exhaust a substandard pancreas. Von Noorden adds that while fat is the mainstay of diabetics and although at present fat is the most difficult to procure of all articles of food, yet a very satisfactory arrangement has been made in his city to supply certified diabetics with a suitable diet of eggs (ten a week); butter 500 gm. (later reduced to 300 gm.); fresh meat 250 gm.; with a daily ration of cream to a maximum of 300 gm.

Gazzetta degli Ospedali e delle Cliniche, Milan

October 1, XXXVII, No. 79, pp. 1233-1248

44 *Experimental Cholemia. General Action of Bile Circulating in the Blood. Its Action on the Heart. A. Berti.—p. 1236.

44. **Effect on Heart, etc., of Bile in the Blood Stream.**—Berti compares the experiences of various clinicians and research workers on the general effects of cholemia and the action on the heart in particular. He also describes personal research in this line on dogs, a fistula into the pericardium permitting oversight of the heart action after bile had been injected into the blood stream. Under its influence the heart fails to expand normally, while the contracting force is intensified when the cholemia is of high degree. A small bile content of the blood depresses the contractile energy of the heart and slows the beat. Larger doses have a hypertonic effect, increasing the contractile power but depressing the expanding power. This hypertonic influence from the cholemia was most evident on the surviving heart of cats. The action on the heart of bile in the blood stream is most pronounced when the heart is fatigued or the seat of fatty degeneration or other pathologic process. Hence the data obtained by research on normal hearts cannot be applied to pathologic conditions.

Policlinico, Rome

October 1, XXIII, No. 40, pp. 1167-1194

45 Bullets with Tip Reversed. (Sui proiettili austriaci da fucile rovesciati.) R. Alessandri.—p. 1167.
46 *Treatment of Cholera. C. Carloni.—p. 1173.

October 8, No. 41, pp. 1195-1222

47 Primary Surgical Treatment of Gunshot and Shell Wounds of the Knee. (Sul modo di comportarsi nelle unita sanitarie avanzate, dinanzi alle ferite d'arma de fuoco, penetranti nell'articolazione del ginocchio, ed alle consecutive artriti suppurate.) U. Camera.—p. 1195.
48 Ligation of Carotid Artery. (Allacciatura dell'arteria carotide esterna.) G. L. Gestro.—p. 1204.
49 Disinfection Service for Troops on Active Service. (Note pratiche per i disinfettori e gli infermieri dei riparti infettivi in guerra.) G. Aperlo.—p. 1206. Commenced in No. 40, p. 1177.

46. **Cholera.**—Carloni advocates, as the consensus of opinion, treatment of cholera by transfusion of a hypertonic solution; oxidation of the cholera toxins by means of permanganates; alkaline injections to ward off uremia, and subcutaneous injections of atropin. He cites the reasons and technic for these four measures.

Riforma Medica, Naples

XXXII, No. 29, pp. 781-808

50 Intravenous Injection of Colloidal Sulphur Preparation in Treatment of Acute and Chronic Polyarticular Rheumatism. R. Massalongo and S. Vivaldi.—p. 781.

No. 30, pp. 809-836

51 Tics and Their Treatment. (Sulla malattia di Gilles de la Tourette.) V. Desogus.—p. 809.

No. 31, pp. 837-864

52 Sarcomatosis of the Bones with Albumosuria. O. D'Alloco.—p. 837.

Cronica Medica, Lima

XXXIII, No. 4, pp. 97-128

53 Injection of Oxygen in Treatment of Gas Gangrene. (La oxigenoterapia para el tratamiento de la gangrena gaseosa.) P. S. Mimbela.—p. 97.
54 The Protozoa of Contaminated Drinking Water. (Protozoarios de las aguas de Arequipa.) E. Escomel.—p. 103.
55 Operations under Local Anesthesia. F. Wieland.—p. 117.

No. 5, pp. 129-160

56 Peptic Jejunal Ulcer Seven Years after Roux Gastro-Enterostomy. F. Wieland.—p. 133.
57 Painless Delivery under Epidural Anesthesia. (La analgesia obstetrica por inyecciones epidurales de novocaina.) F. Ferreyra.—p. 136.
58 Paroxysmal Tachycardia. M. Villacorta.—p. 145. Continued.
59 Indications and Technic for Prostatectomy. (La prostatectomia en dos tiempos. Como debemos operar?) M. V. Matos.—p. 152. Commenced in No. 3, p. 79.

No. 6, pp. 161-204

60 Surgical Treatment of Gastric Ulcer. L. de la Puente.—p. 161.
61 Prehistoric Skull with Five Trephining Holes, Two Partly Grown Up. (Caso interesante de trepanacion incaica.) E. Escomel. p. 171. With illustrations.

Brazil-Medico, Rio de Janeiro

September 16, XXX, No. 38, pp. 297-304

62 Semeiologic Significance of Direct Abdominal Pain in Woman. III. (A dor nas desordens renaes.) R. Vaz.—p. 297. Commenced in No. 37, p. 289. To be continued.

September 30, No. 40, pp. 313-320

63 The Helminths of the Region South of Rio de Janeiro. II. (Informações sobre a fauna helminthologica sul-fluminense.) L. Travassos.—p. 313.
64 Vaccine Therapy of Whooping Cough. (Tratamento da coqueluche pela vaccina de Krauss.) U. Paranhos.—p. 314.

Russkiy Vrach, Petrograd

XV, No. 34, pp. 793-816

65 *Operative Treatment of Peripheral Nerves Injured by Gunshot and Shell Wounds. (Chirurgia periphericheskikh nervov.) A. D. Pavlovsky.—p. 793. Commenced in No. 32, p. 745.
66 Operative Treatment of Traumatic Aneurysms. V. A. Shazk. —p. 801.
67 Case of Arteriovenous Aneurysm in Portal Vein Region. S. N. Lisovskaia.—p. 805.
68 War Fractures of Long Bones. (K voprosu o liechenii ognestrielnikh perelomov dlinnikh trubchatikh kostei konechnosti.) G. B. Berlatzky.—p. 806.
69 Immobilization with Extension for the Hip Joint during Transportation. (K voprosu o vuityazhenii bedra pri transport.) A. F. Berdiaeff.—p. 807.
70 *Protective Ferments Giving Abderhalden Reaction in Infectious Diseases. (K voprosu o reaktsie Abderhalden'a pri zaraznikh zabolievaniakh.) M. P. Izabolinsky.—p. 808.

65. **Surgery of Peripheral Nerves.**—Pavlovsky here concludes his long account of his experience with twenty-five soldiers suffering from injury of peripheral nerves following a gunshot or shell wound. He operated in twelve of the cases, and from the results observed discusses the indications and technic in various types of injury. He insists that such operations are simple and harmless and they often are important for differential diagnosis. The benefit obtained is rendered durable by enclosing the nerve in a segment of an artery from a cadaver, pig or calf.

70. **Protective Ferments in Infectious Diseases.**—Izabolinsky applied the Abderhalden test with dysentery, typhoid, paratyphoid and cholera antigens to 2 c.c. of serum from patients with typhoid, dysentery, syphilis, or typhus, and to healthy persons. He experimented also with laboratory animals. His tests demonstrated that the blood of man and animals with natural or artificial typhoid forms specific ferments demonstrable by the Abderhalden technic. These ferments must be referred to the group of antibody amboceptors because on heating the serums they lose the faculty of digesting albumin. Only the addition of fresh serum complement restores this faculty. Injection into rabbits of alien albumin in the form of killed cultures of typhoid or paratyphoid bacilli, induces in their blood the production of specific ferments which can be rendered manifest by Abderhalden's technic, as also in the blood of persons already under the influence of the infection in question. Parallel tests with blood from persons with other infections always gave negative findings with antigens other than the one in question. He obtained the same specific response with ten soldiers who had been vaccinated against typhoid, their serum responding specifically to typhoid antigen and only to this, all the other tests proving negative. Izabolinsky is confident that we have in these specific ferments in infectious diseases a field for fruitful research to determine their nature and properties.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

October 7, II, No. 15, pp. 1269-1364

71 *Influencing the Heart Rhythm by Artificial Means. (Een studie van de hartspier volgens de pharmako-physiologische methode.) S. de Boer.—p. 1275.

72 *Tuberculosis among the Natives of the Dutch East Indies. (Over tuberculose bij de inlanders in Nederlandsch Indie.) A. E. Sitsen.—p. 1292.

73 Treatment of Tetanus. Experiences in the War. C. Ten Horn. —p. 1305.

71. **Pharmaco-Physiologic Study of the Heart Muscle.**—De Boer has been applying the usual clinical tests and methods of examination to the heart first placed under the influence of veratrin or other drugs. He gives here the curves from several of the hearts thus tested. The work was done on frog hearts; more than 100 experiments were thus made.

72. **Tuberculosis in Dutch East Indies.**—Sitsen found that 7.5 per cent. were tuberculous among the persons admitted to the clinic in his town in Sumatra from 1891-1902, but the figure was only 6.9 per cent. from 1902 to 1912.

Hygiea, Stockholm

LXXVIII, No. 18, pp. 1393-1472

74 *Diagnosis of Gastric and Duodenal Ulcer. (Om diagnosen av mag och duodenalsår i belysning av opererade fall.) R. Dahl. —p. 1408.

75 *Radiotherapy of Tuberculosis with Mercury Vapor Light. (Om ljusbehandling mot tuberkulos.) V. Malmström.—p. 1420.

74. **Diagnosis of Gastric and Duodenal Ulcers.**—Dahl tabulates the findings in 41 cases in which he operated, comparing them with the symptoms previously observed, the stomach content findings and other details. In 19 cases there had been no bleeding except occult in 2, but all suffered from pain coming on from two to four hours after eating, except 6 whose pain commenced in from one to two hours. In none of them did the pain come on earlier than an hour. The pains appeared always at the same point and after the same range of interval, but the interval was shortest after a small meal and longest after a heavy meal. There was no tender point on pressure in quite a number of the cases, and this proved misleading in some cases. In a number also there was tenderness only during the periods of pain. There was hypersecretion in only 8 cases, and no vomiting in 23 of the 41 cases. Vomiting occurring at the height of the pains is characteristic, but this is rare. The Roentgen findings were not decisive in the 4 cases examined with the screen. In short, the pain is the only constant and reliable symptom of gastric or duodenal ulcer, but this is so characteristic that there can be no mistaking it. The patients were of both sexes, from 18 to 60 years old; the symptoms suggesting ulcer dated from one to thirty-seven years before. In one case of extensive hemorrhage from the stomach, but no pains, the operation failed to reveal any tendency to ulcer, as also in another case of pains without bleeding. In another case the trouble proved to be a cancer in the lesser curvature. The duodenum proved to be sound although it showed a "niche shadow" on roentgenoscopy. Dahl adds that about every sixth one of his patients last year presented symptoms of a gastric or duodenal ulcer, but only a small fraction of them were given operative treatment. He is convinced that these ulcers often escape detection. The first signs of trouble develop usually between 20 and 30. The sooner the ulcer is given proper treatment, the better the outcome.

75. **Radiotherapy of Tuberculosis.**—Malmström has applied the mercury vapor light in over 100 cases of internal and external tuberculous processes, including eighty with pulmonary lesions. The entire body was exposed to the light for an hour every day or second day, commencing cautiously. No untoward by-effects were noted and the improvement in the general health was striking. Large tuberculous glands, with or without fistulas, subsided completely or leaving but slight relics. The fistulas healed without disfiguring scars. One empyema fistula, which had persisted for two years, healed over in three and a half months under the radiotherapy. Tuberculous processes in the larynx, bones and peritoneum, as also lupus, were cured or materially improved. He expatiates on the importance of radiotherapy with the sun, arc light or mercury light as a valuable adjuvant in combating tuberculosis, and suggests that a course might be found useful as a preventive when the pleura or the glands at the hilus are affected. This might ward off secondary pulmonary tuberculosis.

Ugeskrift for Læger, Copenhagen

September 28, LXXVIII, No. 39, pp. 1655-1702

76 *Clinical and Roentgenologic Study of Chronic and Habitual Constipation. II. T. E. H. Thaysen.—p. 1655.

77 *Inversion of the Uterus. E. Henningsen.—p. 1663.

78 Eclampsia at the Sixth and Seventh Months of Pregnancy; Two Cases. E. Bilsted.—p. 1671.

79 The Duties and Ethics of a Health Officer. (Embedslægens Forhold til Myndigheder, Publikum og Kolleger.) J. Lunddahl. —p. 1676.

76. **Habitual Constipation.**—Thaysen discusses in particular the constipation from atony of the large intestine whether due to physical inferiority of the walls of the bowel or to nervous influences inhibiting peristalsis. The vagus stimulates peristalsis, the sympathetic checks it, and the assumption that the preponderance of the latter is responsible for habitual constipation is accepted by many clinicians. The findings ascribed by Nothnagel to a congenital atrophy of the bowel walls have since been shown to be cadaveric changes. The degenerative changes in the nervous system in the elderly amply explain the senile tendency to habitual constipation. Thaysen has never found the lower bowel particularly abnormally distended with habitual constipation, except in one patient, a man of 26 with melancholia requiring institutional treatment. The transverse colon in this case was extremely distended its entire length, with insufficient peristalsis, but as a rule it is impossible to determine hypotonicity and hypomotility of the large intestine, not even with the Roentgen rays. The findings are not characteristic for constipation of the atony type except that it is not accompanied by the severe pains of the spastic type of constipation. Both are merely symptomatic conceptions, as in the majority of cases no pathologic anatomic or pathologic physiologic findings are discoverable.

77. **Inversion of the Uterus.**—The inversion occurred at the birth of the third child after Credé expression. The uterus was easily restored to place and the young woman seemed to be doing well until the ninth day when on straining to urinate the inversion occurred again. Various efforts to reduce it failed, and as the mucosa began to show damage, a Küstner-Borelius operation was done. Fatal peritonitis followed. Spontaneous inversion is very rare. Pulling on the umbilical cord or Credé's expression on a uterus not capable of contracting properly is usually responsible for it. Even very light pressure on the empty, slack muscular bag may be enough to induce inversion, but cases are known —one occurred recently at the Copenhagen maternity—in which inversion occurred following spontaneous delivery of both child and afterbirth. Recovery was uneventful after prompt reduction of the uterus. It is an easy matter to reduce most of the uterus, the left hand on the abdominal wall, but the region of the external os is harder to conquer. Holzapfel accomplished it in one case by working his finger down through the relaxed abdominal wall into the inverted passage, his assistant doing the same, and by their pulling apart, they thus stretched the passage enough to complete the inversion. The inflatable bag, correctly placed, may reduce the inversion, even when it has lasted a long time. In Barsony's case it failed although kept up for three weeks, but the uterus slid back into place soon after fixation by tamponing. The obstructing ring gradually dilates under these measures and, when the lumen has become large enough, the uterus slides rapidly back into place with pains suggesting labor. The mucosa is liable to be damaged with any of these maneuvers so that removal of the inverted uterus seems the simplest and safest measure. With the Küstner-Borelius operation, the roof of the posterior fornix is opened with a transverse incision, and the posterior wall of the uterus is slit. The uterus is then turned and sutured thus bringing the mucosa inside. The sutured uterus is then pushed back into the abdominal cavity through the incision in the posterior lacuna.